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ORIGINAL ARTICLES.

BACTERIEMIA.

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The knowledge that a *contagium animatum* circulates through the blood is much older than bacteriologic science, a fact which has been recognized by virtue of the simultaneous involvement of different organs in the same way in a given disease. A better grasp of the situation was given the pathologic anatomist through the researches of Virchow in regard to thrombophlebitis caused by bacterial invasion in the blood vessels and consequent metastatic formations. The mode of spreading of disease through the blood stream in this purely mechanical way was further demonstrated by the work of Weigert in which the relationship of tubercle formation in the venous walls and the consecutive miliary tuberculosis was demonstrated. Furthermore, Ponfick and Hanau showed that tuberculosis is propagated through the ductus thoracicus. More recently Albrecht and Ghon have shown how hemorrhages take place from the walls of veins which are in the neighborhood of plague buboes and thus permit the bacillary invasion. The anatomical knowledge concerning the relationship between bacteria and the blood requires, however, a supplementary investigation from the bacteriologic point of view, in order to permit a complete understanding of its multiform aspect. Obermayer, in 1873, discovered that in recurrent typhus there exists a pathogenic agent whose development occurs solely in the blood and for which the blood plays not merely the role of disease-carrier for the spirochæte, but, indeed, is itself actually the diseased tissue. This role of the blood in disease was likewise demonstrated in malaria. Painstaking investigations of Italian and English physicians brought about a correct understanding of the pathology of malaria, so that at the present time the epidemiology of this process stands upon a well-recognized scientific basis of practical clinical value. Of special interest to pathology is the spread of disease through the agency of insect-bites, thus producing disseminated disease throughout the blood stream without the production of a primary focus of infection. It has also been definitely established (through the researches of Beard and Lambel) that Malta fever (caused by the micrococcus melitensis of Bruce) may occur, after a typical period of incubation, as a purely cutaneous infection without visible local reaction. It may be mentioned parenthetically, that in typhus recurrens and exanthematicus experienced clinicians have assumed a conveyance of the disease by the agency of bites of fleas, bed-bugs, etc.

The list of purely hematic infections in which the pathogenic organism enters the blood and there undergoes dissemination is complete according to our present knowledge; for other bacteriemias, according to generally accepted views, the blood infection is a secondary manifestation of an anatomical primary infection elsewhere. This second mode of blood infection occurs frequently and in many varieties. It will be convenient to differentiate two principal types of blood disease: 1. Cases in which the micro-organic invasion is repeated at intervals, *e. g.*, metastatic suppurative processes and miliary tuberculosis. 2. Cases in which the blood infection is of great importance, as typhus abdominalis, anthrax, some cases of sepsis, and in bubonic plague.

The first category, which includes the metastatic processes, has been frequently described and hardly needs further mention except to call attention in passing to the fact that the role played by the leucocytes in the transportation of bacteria is of greater importance than has hitherto been believed. Wertheim has proved that in gonorrhea the leucocytes return to the blood stream laden with living and virulent micro-organisms, and thus produce a general infection. An identical mode of propagation from the primarily diseased nasal mucous membrane has been shown by Stricker to be true for the *lepra bacillus*. Probably isolated metastases in influenza and other infections should similarly be accounted for.

In the second class of cases the blood is something more than a mere vehicle for transportation. It is, indeed, affected so materially itself that its behavior is of interest from both the pathologic and clinical point of view. In plague, anthrax, septic and diplococcic bacteriemia, and in typhus abdominalis the blood becomes the seat of the bacterial process, and is more than an intermediary agent between the primary and secondary foci of disease. This type has, of course, been more carefully observed by clinicians and bacteriologists than by pathologic anatomists, for the reason that the germs in the blood produce no apparent or but slightly recognizable changes. While it is true that such infections may produce icterus or hemorrhages, the latter conditions may also be the result of the chemical action of the metabolic products evolved by living bacteria. Therefore a bacteriologic investigation alone offers a positive method of recognition. This kind of bacteriemia can be regarded as occurring typically in certain cases, *e. g.*, in typhus abdominalis. It may be relatively frequent in other infections, as anthrax, pyogenic infection, and bubonic plague. Finally, it may occur exceptionally. I recall several instances of the *bacillus of diphtheria* found in the spleen and kidneys, of the influenza bacillus in brain abscesses and endocarditis, and may remind you of gas phlegmon which in several cases brought a terminal inundation of the blood with micro-organisms.

The systemic invasion may not be due, as is the case in the classes above referred to, to the specific germ which produced the primary infection, but may be directly ascribable to a concomitant infection with another bacterium. In variola hemorrhagica, according to Paltauf's observations (which I can endorse), there may occur an early violent streptococcal invasion, while, during the state of suppuration, an inundation of the organism with staphylococci may bring about a fatal result. Similarly in scarlatina a general streptococcal infection may occur which indeed in many cases may be the direct cause of death. Less frequent, but well authenticated, are such secondary pyogenic blood infections in diphtheria, and in bubonic plague, in which disease they are of special diagnostic

significance. Furthermore, secondary bacterial invasion plays an important role in the ulcerative form of pulmonary tuberculosis. In most cases we are concerned with an infection by the pyogenic organisms which in severe hectic fever are partly responsible for the grave symptoms, and which, however, may be found in the blood even at the time of relative euphoria. It is noteworthy that even the presence of numerous living bacteria in the blood does not necessarily indicate an unfavorable prognosis in tuberculosis, an observation which Kobert in the sanitarium of Goerbersdorf ascertained. Concerning mixed infection in granular tuberculosis, a positive opinion does not seem to be warranted at the present time.

In the mixed secondary infections mentioned above we are concerned with an infection with bacteria which are characterized by their tendency to produce blood infection. Jehle, however, found in a large number of cases of scarlatina and measles the presence in the blood of influenza bacilli whenever they were to be found in the respiratory tract. The invasion of influenza bacilli into the blood is ordinarily a very unusual occurrence, but in cases of double infection with scarlatina and measles there occurs, apparently, a typical influenza bacteriemia. Recent literature contains several reports which confirm this finding, and some writers wrongly ascribe to these bacilli the role of specific causative factors of the exanthemata.

There can be no doubt that bacteriological examination of all cases of infection will bring about a far better understanding of this question. Double and secondary infections of this sort are, as has been emphasized by Babes, frequently met with epidemically. They deserve also the attention of the clinician who, in hospital work especially, may, through the early recognition of such a "combination," be able to prevent effectively their dissemination throughout the organism. Such a multiple infection often means a decidedly greater hazard to life than a simple infection.

It can thus be seen that an invasion of the blood by bacteria may assume a manifold aspect; first, the involvement of the blood without any primary local manifestation, as in malaria, Malta fever, and relapsing fever; second, typical blood invasion with local reaction at the site of ingress, as in typhoid fever or anthrax; third, the involvement of the blood through the medium of the leucocytes, as in gonorrhea and possibly also in leprosy; fourth, the blood may be infected by disease of the blood vessel wall, as in pus infections, tuberculosis and bubonic plague; finally, streptococci, diplococci and other organisms may enter the blood through the lymph stream. To these modes of invasion we must add the cases of bacteriemia which are due to a mixed infection, *e. g.*, the entrance into the blood of staphylococci, streptococci and influenza bacilli in small-pox, scarlatina and measles. We must furthermore add the various bacterial infections of the blood in tuberculous patients, apparently produced by the establishment of pathological communications into the circulatory system. This schematic division cannot, except for the pure hematic infections, be strictly adhered to, since in anthrax, bubonic plague, pus infection and tuberculosis the blood infection is not constantly typical, but only a more or less frequent occurrence, showing all possible degrees of variation from the entrance of a few germs, the presence of which is proved by solitary metastases, up to the overwhelming bacteriemia of *pestis siderans*. The blood infection is dependent on two factors: first, upon the nature of the bacterium, which depends in general on its biological charac-

teristics, and in particular on its degree of virulence or upon the association with other bacterial agencies; second, on the condition of the individual affected. This second factor presents itself in various ways. It is of importance to know which organ is primarily affected. For example, pulmonary anthrax and pulmonary plague infect the blood more readily than the same infection which has gained its entrance through the skin. Tonsillar pus infections are more dangerous than similar infections of the extremities. Or this factor may be dependent upon certain peculiarities of the diseased individual, for which we use the comprehensive but rather vague term, "individual disposition." This term, which has been evolved from the comparison of many careful observations, even in the light of recent investigation in the direction of etiology, does not gain in significance.

Precisely as pathological anatomy has, through its findings, differentiated conditions clinically apparently related, and recognized clinically different processes as related pathologically, and thus, in conjunction with clinical medicine, has broadened and deepened our pathologic knowledge as a whole, so has bacteriology taught us that different disease germs may bring about processes which are clinically and anatomically related. Erysipelas may be produced by streptococci as well as by staphylococci, bronchitis by diplococci and influenza bacilli, membranous inflammations by diphtheria bacilli and streptococci. The clinician and the anatomist have recognized the importance of this newer standpoint, and by more refined observation can to-day differentiate with a considerable certainty merely from the appearance of the sputum and post-mortem findings whether a pneumonia is caused by the diplococcus or by the bacillus pneumoniae, or whether the influenza, the plague bacillus or the bacterium coli communis lie at the bottom of the process.

Up to the present time the anatomist has not advanced to an equal skill in the macroscopic recognition of bacteriemia. Signs of a secondary propagation of the pathologic process enable him to draw conclusions as to a preceding bacteriemia, a fact which was first recognized and emphasized by Ponfick in typhoid fever. In general the criteria of blood infection are very defective. Splenic tumor is only in certain processes sufficiently characteristic to permit even a well-trained examiner to draw conclusions as to the nature of the disease process. Concerning the alterations of the most important blood source, the bone marrow, we still know very little, in spite of many interesting and important reports. Other signs of an infection, as degeneration of the parenchymatous organs, capillary hemorrhages, etc., etc., present nothing especially characteristic with reference to the bacterial inundation of the blood, although in special instances, as bubonic plague, hemorrhages occur and are undoubtedly connected with the blood infection. In a post-mortem in such a case the careful observer, however, will note various suggestive points. Thus, in septic and diplococcus infection, an especially early appearance of post-mortem imbibition of the intima of the greater vessels suggests the presence of bacteria in the blood. Or we may be led to assume this condition by an incongruity between the relative unimportance of the anatomical lesions and the ensuing fatality; for instance, in scarlatina influenza bacteriemia can be assumed (if the thymus gland is not found abnormally large). But all these conclusions are decidedly indefinite and based entirely upon personal judgment. Only bacteriological examination will yield a result of scientific worth.

The compilation of a series of anatomical and clinical observations from the

standpoint of etiology presents an extraordinary multiformity of clinical and anatomical pictures of an etiological unity. The pyogenic streptococci may exist in the oral cavity as harmless parasites; they may, on the other hand, produce localized or progressive inflammations ending in a *restitutio ad integrum* (erysipelas), or finally cause a suppurative tissue disintegration with subsequent scar formation (phlegmon); they may bring about a local necrosis in addition to a suppurative inflammation (ulcerative endocarditis and osteomyelitis); they may invade the blood by way of the lymph stream and produce distant metastases, *e. g.*, in the joints; they may attack the vascular walls and form thrombi. Disintegrating thrombi form either emboli in distant organs or may lead to death under the picture of a fulminating sepsis or an acute atrophy of the liver (Favre and Babes), the blood being inundated from an insignificant focus. The same bacteriemic infection may run a milder course in the form of articular rheumatism, which Singer, in a large proportion of cases, correctly describes as a mild form of pyogenic mycosis.

Bubonic plague runs its course as a localized infection accompanied by symptoms of toxemia, more frequently with a subsequent bacteriemia of greater or less severity; it may, however, show a tendency to form metastases. In anthrax the invasion of the blood occurs without metastases. In malleus metastases occur typically. In tuberculosis there is very often a formation of metastases along the course of the blood vessels, producing miliary tuberculosis. In an influenza infection metastases occur extremely seldom, but when combined with scarlatina and measles, this same germ produces a typical bacteriemia. In typhoid fever, infection of the blood is a constant finding, metastases being relatively rare. In phlegmon due to gas-producing bacteria, both toxemia and bacteriemia occur coincidently.

From this short resumé we see that infectious intoxication, the formation of metastases, and bacteriemia may vary widely. Based upon older views of the variety of infections following inflammations, there have been created the terms "sepsis" and "pyemia," and processes, in part analogous, have been denominated by these terms, *e. g.*, septic diphtheria and pyemic form of bubonic plague. On the other hand, there have been advanced other descriptive terms for this same kind of metastasis-formation, as general miliary tuberculosis and miliary pulmonary malleus. Although this terminology has historic foundation, I am of the opinion that, according to our knowledge of to-day, we should replace the older terms "septic" and "pyemic" by the more intelligible expressions: local infection with subsequent toxemia, or inflammation bringing about metastases. In addition to the latter, the term bacteriemia may be applied to a special form of blood infection, for the description of which there is no name in our terminology. For scientific investigation and teaching purposes, a good terminology is of the greatest importance. Accurate definitions facilitate correct understanding of similar and differing features of the individual case and permit the investigator a comprehensive survey of the field.

TUBERCULOSIS OF THE CHOROID: TUMORS OF THE CHOROID.

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Tuberculosis of the Choroid may be in the form of miliary tubercles accompanying general acute tuberculosis, or as large masses in chronic tuberculosis. In *miliary tubercle* a few tubercles (one to ten) are found in the macular region, measuring from one-third to two-thirds the diameter of the optic disc, and presenting a pale-rose or grayish-yellow color, resembling the spots seen in disseminated choroiditis. They usually occur in both eyes. At first, a small pigment spot, slightly more prominent than the remaining parts of the fundus, will be seen; this is due to a slight bulging of the pigment layer over the tubercle. Soon the pigment undergoes absorption, leaving the tubercle visible as a small mass of the color mentioned above. The tubercles in this form of the disease appear a few hours or days before death—hence they cannot be mistaken for the elevations of disseminated choroiditis. They begin in the deeper layers of the choroid, growing from the adventitia of the vessels. They do not affect the vision. In many cases they can be demonstrated by microscopic section in eyes which present no changes to the ophthalmoscope. In probably eighty per cent. of cases of miliary tuberculosis their presence can be demonstrated. They bear no relation to tubercular meningitis. Gowers and others believe they are less frequent in tubercular meningitis than in general tuberculosis without meningitis. The presence of tubercle bacilli cannot always be demonstrated in these cases. The larger tubercles show giant cells with a reticulum of fibers, small-cell infiltration and caseation. The smaller growths are collections of lymphoid cells between the vessels. Since this disease appears very late in an incurable malady, treatment is valueless. The presence of tubercles in the choroid may assist the physician in making a diagnosis between acute miliary tuberculosis and typhoid fever.

A Large Tubercular Mass often presents the clinical picture of a sarcoma of the choroid. It is probably always secondary to tubercle elsewhere, although the latter may defy localization. The disease is usually unilateral. The patient may early show a destructive inflammation of the globe with perforation, or the disease may cause no symptoms and be accidentally found by ophthalmoscopic examination. In a few cases glaucoma appears. Since the disease occurs chiefly in children and young subjects, it may be mistaken for neuroepithelioma of the retina. There is much variety in the ophthalmoscopic appearances of this disease. The tubercular mass usually appears as a solitary white or grayish elevation springing from the central part of the fundus. It is to be distinguished from leucosarcoma of the choroid, neuroepithelioma of the retina, and subretinal cysticercus. The absence of vessels serves to exclude the first and second conditions, while its immobility and solidity will distinguish it from cysticercus.

Since the tubercular tumor is secondary to tuberculosis located elsewhere, the removal of the eye is not demanded at an early stage, provided the diagnosis is clear. If it is in doubt, the eye should be removed and subjected to microscopic examination. Cases of tubercular tumor which are progressive and tend to perforate should be treated by enucleation. The general treatment of the patient is of great importance in these cases. After a successful operation the patient may die from tuberculosis of the meninges, lungs or abdominal viscera.

Carcinoma of the Choroid is of rare occurrence, about thirty cases having been reported. The disease is always metastatic. The rarity of metastatic growths in the eye is accounted for by anatomic conditions—the small size of the ophthalmic artery, and the fact that it is given off from the internal carotid at an angle of ninety degrees. Metastasis is more common in the left eye than the right, owing to the difference in the carotids. The left carotid receives emboli more easily than the right, inasmuch as it arises from the aorta directly. Metastatic growths occur most often at the posterior pole of the eye, owing to the greater caliber of the short ciliary arteries. Lagrange,¹ of Bordeaux, states that metastatic carcinoma of the choroid is usually a bilateral disease, and that it always shows itself first in the macula region. Of nineteen cases mentioned by Lagrange in a paper presented to the Paris Ophthalmological Society in 1898, in sixteen the primary carcinoma was situated in the breast, once in the stomach, and twice in the lungs. In five of these cases the disease was present in both eyes when the patients first came under observation; in two the second eye became involved within a few weeks; in the cases in which one eye only was attacked, the left eye was the affected organ. In three cases only the right eye was the primary seat of the disease. The prognosis is unfavorable, the patients usually dying within one year after the appearance of the disease.

Other Tumors of the Choroid.—Aside from the occurrence of carcinoma and the solitary form of tubercle, which have been considered, the choroid is at times the seat of sarcomata, myomata, cysts and nevi. Sarcomas occur either primarily or by metastasis. They belong to the middle period of life, being rarely seen before the thirty-fifth year. Some are white (leucosarcomata), while others are black (melano-sarcomata). Their tendency is to grow out of the globe in three directions: (1) along the course of the *venæ vorticosæ*; (2) along the optic nerve to the brain; and (3) to the corneoscleral junction, where they perforate. Their microscopic appearance is variable, and more than one type of structure may be found in the same growth. The small round-cell and spindle-cell are common; angio-sarcoma, telangiectatic sarcoma, adenoma and enchondroma are very rare choroidal growths.

Sarcoma of the Choroid.—This is a rare disease, being found in the proportion of about 1:3000 ophthalmic cases. In the vast majority of cases the growth is primary. However, the author has met with one case of choroidal sarcoma sequent to a sarcoma of the leg, and another metastatic case was observed by Meigs and De Schweinitz, in which the primary growth was located in the mediastinum. Doubtless metastatic sarcoma of the choroid occurs more frequently than is supposed, since in many cases of general sarcomatosis the eyes are not examined. The primary intraocular growth is usually single and unilateral, and usually is in the form of a projecting knob, growing toward the center of the eye, and presenting a neck and base. Sarcoma may appear as early as the fifteenth or as late as the eighty-fourth year, although most frequent between the ages of forty and sixty. The disease is more common in males than females (Fuchs, A. Hill Griffith, Lawson); but Kerschbaumer states that sex is without influence in the causation of intraocular sarcoma. The cause of the disease is not known. After removal of the eye the disease often becomes metastatic, invading any organ or tissue, not excepting the bones. The brain is rarely involved by extension along the optic nerve. A rare complication is pigmentation of the skin either in the form of a diffuse dark color suggestive of argyrosis, or in the form

of small, discrete round spots, two to four mm. in diameter, which may be too numerous to be counted.

SYMPTOMS.—The symptoms vary much in different stages of the disease.

1. In the first stage the patient complains of a defect in the field of vision. On examination a detachment of the retina is seen at the site of the tumor. The mass appears of a purple-red or slate color, according to its pigmentation. If deeply pigmented it may appear black. Blood vessels are seen coursing over it. There is no pain and the tension is normal. The defect in the visual field may take a hemianopic shape or be quite irregular. Vision in the first stage may be only slightly or considerably reduced, according to the proximity of the growth to the macula. The duration of the first stage is from one to two years.



Fungating Sarcoma of the Choroid.

2. In the second stage there is increase of tension, while the external appearance of the eye resembles that found in inflammatory glaucoma: the anterior chamber is shallow, the pupil dilated, the cornea cloudy, and dilated episcleral vessels are seen. If the media are clear, a detached retina is seen. Later the lens becomes opaque and the clinical picture is that of absolute glaucoma. Pain now sets in and makes the glaucomatous picture so striking that experienced diagnosticians have been deceived.

3. In the third stage the tumor escapes from the globe, the symptoms varying according to the place of exit. If in front, dark nodules are seen about the corneoscleral region; if behind, the existence of perforation cannot be told until the growth produces exophthalmos. Pain is relieved by the perforation of the globe. The growth of the sarcoma then proceeds with startling rapidity. The

tumor fills the orbit and causes a projection as large as two fists. The exposed parts of the mass ulcerate and bleed; the deeper portions may grow into the brain.

4. In the fourth stage metastatic nodules form in the internal organs, the liver, stomach, and mesenteric glands being favorite sites. The patient dies of exhaustion. The first and second stages may comprise several years; the third and fourth stages are measured by months.

DIAGNOSIS.—In making a diagnosis of sarcoma of the choroid the following conditions must be reckoned with: (1) detachment of the retina and choroid; (2) neuroepithelioma of the retina; (3) solitary tubercle of the choroid; (4) intraocular cysticercus; (5) glaucoma; (6) spontaneous rupture of the eyeball; (7) iridocyclitis; (8) syphilis, with choroidal exudation.

1. (*a*) RETINAL DETACHMENT caused by sarcoma of the choroid differs from the simple variety in that in the latter the retina, early in the history of the case, is transparent, owing to the absence of the color given to it by the choroidal pigment. Spontaneous retinal detachment is preceded by *muscæ volitantes*, appears suddenly, and is accompanied by vitreous opacities, reduced tension, signs of choroiditis, and often occurs in eyes which are highly myopic. The condition of the other eye as regards refraction, the condition of fundus, and the history of the case, are of some diagnostic value. Holden says that simple retinal detachment extends to the ora serrata, while in tumor detachment is long delayed, particularly when the tumor is in the ciliary body or posterior pole of the eye. The detachment in the simple form tends to produce folds and show undulations on movement of the eye, while in tumor folds are generally absent, and the mass does not undulate.

At times, however, cases occur in which serum collects between a sarcoma and the retina, thus simulating simple detachment and making the diagnosis exceedingly difficult or impossible.

In some of these cases where the retina is not thickened and the sarcoma is rich in vessels, the tumor may be recognized by the presence of vessels which are neither choroidal nor retinal. As a rule, a large detachment of the retina pressing against the lens will be due to an underlying sarcoma. Tension is a valuable diagnostic point. In retinal detachment due to a serous collection it is generally decreased; in choroidal sarcoma it is usually normal at first and becomes increased later. A dilatation of the anterior ciliary veins localized to one part of the globe indicates sarcoma, the growth interfering with the return of the blood through one of the *venæ vorticosæ*.

In melano-sarcoma the urine sometimes contains melanin. Urine containing melanin turns black on the addition of perchloride of iron.

Bellarminoff's device may assist in making a diagnosis. The eye being anesthetized, a piece of moistened plane glass is pressed against the cornea, thus causing it to become flat and eliminating its refraction. By using strong illumination the opaque sarcoma may sometimes be recognized beneath the detached retina.

In case of doubt, the diagnosis resting between sarcoma and retinal detachment, Hirschberg proposed to puncture the eye. If a sarcoma is present, blood will be drawn; if the case is one of detachment, only serous fluid will be obtained. Hirschberg, however, has abandoned this procedure. Schultz³ objects to it on the ground that it is uncertain, and, furthermore, it may furnish a path.

by which extraocular extension may occur. In any instance of doubtful diagnosis, the vision being markedly reduced or entirely lost, an enucleation will be justified, on the ground that it is better to remove a dozen useless eyes with retinal detachment than to leave a case of choroidal sarcoma till the third stage is reached.

(b) DETACHMENT OF THE CHOROID presents even more problems in differential diagnosis. It forms a circumscribed projection, standing out prominently upon the fundus like a sarcoma. The foldings present in simple retinal detachment are absent in detachment of the choroid. Usually in choroidal detachment there is hemorrhage, and choroidal vessels can be recognized beneath the retinal vessels. Fortunately the condition is extremely rare.

2. NEUROEPITHELIOMA OF THE RETINA.—Here the age of the patient is of importance. Neuroepithelioma is found only in children; while sarcoma of the choroid may occur in childhood, such cases are exceptional. If the media are clear, a diagnosis between neuroepithelioma and sarcoma is usually not difficult. The former presents a yellowish-white tumor. A sarcoma, if pigmented, looks much different. In a later stage, when glaucomatous symptoms arise, diagnosis will be difficult.

3. SOLITARY TUBERCLE OF THE CHOROID may be mistaken for leucosarcoma. Tubercle, however, does not show vessels and occurs for the most part in young tubercular subjects.

4. INTRAOCULAR CYSTICERCUS is of such rare occurrence in this country as to demand no consideration. In the early stages, before the advent of inflammatory symptoms, the picture of cysticercus is characteristic and can hardly be mistaken for sarcoma.

5. GLAUCOMA.—The differential diagnosis between sarcoma of the choroid and acute inflammatory glaucoma which has been untreated may be impossible. The author once made an iridectomy for the relief of pain for what was diagnosed as glaucoma absolutum. Improvement was but temporary; the pain returned, and in a few weeks an enucleation showed the case to be sarcoma of the choroid. In such a case the media are opaque, the eye is hard, the episcleral vessels dilated and the pain severe. It will rarely happen in glaucoma that one eye will be entirely blind and the other normal.

6. SPONTANEOUS RUPTURE OF THE EYEBALL, of which the author has observed one case, and Gilfillan³ has recorded another, presents a picture identical with that found in the third stage of sarcoma of the choroid. The history of the case and the excessive rarity of spontaneous rupture will serve to clear the diagnosis.

7. IRIDOCYCLITIS.—Here the chief difficulty arises because of clouding of the media, occlusion of the pupil, and opacification of the lens. It sometimes occurs that in the course of its growth a choroidal sarcoma will cause choroiditis and iridocyclitis of such intensity as to lead to phthisis bulbi. In a case of idiopathic iridocyclitis both eyes are frequently affected. Tension is usually reduced, while in sarcoma tension is usually increased after the period when the media are clouded. In traumatic iridocyclitis the history of the case will clear the diagnosis.

8. SYPHILIS.—Post⁴ has recorded a case of sarcoma occurring in a myopic syphilitic subject. There were floating opacities in the vitreous, and a projecting mass between the macula and optic nerve-head. No improvement followed

antisiphilitic remedies. The eye was enucleated and found to contain a leucosarcoma of the spindle-cell type. In this connection it may be stated that Silcock⁵ has reported a case of gumma of the choroid.

PATHOLOGY.—Sarcoma of the choroid usually is a firm tumor, but is sometimes gelatinous, and may undergo fatty, myxomatous, osseous or cartilaginous degeneration. Histologically it consists either of round or spindle cells, or a mixture of both. It arises either from the outer or middle layers of the choroid, and its tendency is to grow inwards towards the vitreous. Rarely the tumor is flat. Its common form is spheroidal as long as its choroidal covering is intact. Later it breaks through the lamina vitrea and assumes a spheric shape. In its growth it detaches the retina throughout a large area, but at the apex the tumor and retina are intimately attached. Following the detachment comes a stage of inflammation in which either glaucoma or iridocyclitis is set up, the latter leading to phthisis bulbi. The stage of extension follows, the tumor spreading along the optic and ciliary nerves, or along the course of vessels entering the globe. Nodules form in the orbit, and thus exophthalmos is produced. Metastases form in distant organs by embolism, the blood current detaching and carrying the cells to other parts. While local recurrences are unusual after cases operated upon at an early stage, metastases sometimes occur long after the removal of the eye. Sarcomas of the choroid belong mostly to the pigmented tumors (melano-sarcomata). The leucosarcomas are rare.

PROGNOSIS in choroidal sarcoma is always grave, and if the tumor mass has reached the third stage it is generally absolutely bad. An early diagnosis and thorough operation made in the first or second stage will save about forty per cent. of these cases. The danger of return under such circumstances is small, but the liability to the development of metastases is great. These usually appear within six months after enucleation. If the patient remains well for four years after operation the immunity is probable, but not assured. In untreated cases the duration of life is said to be about five years. The prognosis is more favorable in spindle-cell sarcoma than in the round-cell variety.

TREATMENT.—Only surgical procedures are of value in choroidal sarcoma. If the tumor has not passed beyond the second stage, an enucleation with complete resection of the orbital part of the optic nerve, its membranes and the surrounding tissue at the apex of the orbit will be sufficient. If there is doubt about the second stage being past, or if the tumor has undoubtedly passed beyond the globe, a complete removal of the orbital contents must be effected. A bistoury, forceps and scissors are the only instruments necessary. The author believes that with the modern methods of operating the use of caustics in the orbit should be prohibited. In operating on cases in the third stage the aim of the surgeon is more to relieve pain and destroy fetor than to save life. Here the hypodermatic injection of the toxins of erysipelas and bacillus prodigiosus may be tried. In the fourth stage treatment is useless except to relieve pain.

Myoma of the Choroid.—Although the interior of the eye is well supplied with material for the growth of muscular tumors, few cases of ocular myomata are on record. This form of tumor has been found several times in the choroid. In the case of Guiata,⁶ of Siena, the diagnosis rested between a subretinal cysticercus and choroidal neoplasm. The patient was a man aged twenty, whose vision had been failing for several months. The ophthalmoscope showed a rounded elevation downward and inward 4 mm. from the corneal margin. Repeated ex-

aminations failing to show movement in the mass, the diagnosis of choroidal tumor was made and an enucleation performed. The tumor measured 8 by 5 mm., and extended from the ora serrata to the equator. On microscopic examination it was found to be a myoma of the choroid.

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SMALL-POX—THE PRESENT EPIDEMIC.

BY A. W. BRAYTON, M. D., of Indianapolis, Indiana.

The small-pox of the Middle West affords a remarkable instance, unparalleled perhaps in the history of contagious diseases, of a loathsome plague so modified that its morbidity and mortality is less than that of any other of its allies except possibly chicken-pox and German measles.

For we are now dealing with the type of small-pox so graphically portrayed in Macaulay's "History of England," in the chapter on "The Death of Queen Mary," in 1694—"That disease over which science has achieved a succession of glorious and beneficent victories, but which was then the most terrible of all the ministers of death. The havoc of the plague had been far more rapid; but the plague had visited our shores only once or twice within living memory, and the small-pox was always present, filling the churchyards with corpses, tormenting all whom it had not yet stricken, leaving on those whose lives it spared the hideous traces of its power, turning the babe to a changeling at which the mother shuddered, and making the eyes and cheeks of the betrothed maiden objects of horror to her lover."

Such was English small-pox up to the time of Jenner and a century after the death of Queen Mary. "We know," says Lorain, "the date of Jenner's first vaccination as we know the date of a great battle." It was May 14, 1796, when Jenner vaccinated the arm of the eight-year-old boy James Phipps from virus taken from the hand of the dairy-maid Sarah Nelmes, who was infected from her master's cow. And with native Gallic instinct he cites the anecdote of the Duchess of Cleuelard, whose position in the service of Charles II. was in close dependence on her beauty. She replied to the courtiers who were joking on the possible loss of her occupation, through the disfigurement of small-pox, that "she had nothing to fear for she had had the cow-pox." This quotation from Brovarded, in the *Twentieth Century Practice*, indicates no lubricity, but only the light and delightful French gaiety which enlivens their most serious scientific writings.

Before Jenner's time small-pox was a social and vital issue, penetrating every phase and grade of domestic and civic life, reaching from the hovel to the throne, and by its death and disfigurement appealing to the common classes as the less evident results of syphilis and gonorrhea appeal to-day to the profession of medicine. The great mortality of Anglo-Saxon countries is now mainly due to pneumonia, tuberculosis, and typhoid fever; the "Captains of the Kings

of Death," to quote the vivid expression of John Bunyan. And yet the people have little fear of these diseases; they accept them as in the way of nature and Providence. But small-pox, wherever at its rife, revives in the community its old historic terror, although we may control it more absolutely than any other known contagious disease, if public sentiment and intelligence enforce as they should vaccination and revaccination.

There is now growing up in the profession, among the laity, and in legislative bodies, the belief that by proper hygiene and sanitation the ravages of the "great white plague," tuberculosis, which destroys from one-fourth to one-fifth of the people, may be stayed. But it has no such hold on our profession as the knowledge and belief that vaccination modifies small-pox, and that universal vaccination and revaccination will absolutely prevent it in any community or nation. And only by insistence on this belief can the disease be suppressed or even controlled.

The people must be made to know that "no degree of cleanliness of the individual, or of hygiene in the household, or of municipal sanitation, will protect the susceptible against contracting small-pox if exposed to the contagion. The one certain and only safeguard, tested by the experience of the century since Jenner, is "effective vaccination." We all know the old and familiar statistics which prove that vaccination prevents small-pox. These statistics should be kept before the people; they should be treasured in every doctor's mind and instantly ready to his tongue.

These are the immense benefits that the revaccination law of 1874 conferred upon the German nation by controlling the ravages of small-pox.

"In 1871, with a population of 50,000,000, she lost 143,000 lives by small-pox, whereas through the effective working of the law of 1874 the mortality decreased at such a rate that now the disease claims but one hundred and sixteen victims in the year. In 1870-71, during the Franco-German war, the two people interpenetrated each other, the German having its civil population vaccinated optionally, but its army completely revaccinated, while the French (population and army alike) were vaccinated perfunctorily. Both were attacked by small-pox, but the French army numbered 23,000 deaths by it, while the German army had only two hundred and seventy-eight; and in the same tent, breathing the same air, the French wounded were heavily visited by the disease, while the German wounded, having been vaccinated, had not a single case."

The most noted, as it is the most modern and instructive of American epidemics was that of Montreal, lasting from June of 1885 to May of 1886, with a total of over 10,000 cases, and a mortality of 3209, or over thirty per cent. The only reason that small-pox is not slaying its thousands in New York to-day is that the great majority of the people are vaccinated and that vaccination is compulsory upon school children.

But in Montreal small-pox was implanted in a virgin soil, as there had been no compulsory vaccination for ten years. It was among the children most deaths occurred. Of 3164 deaths by December 31, 1886, five hundred and thirty-one were less than a year old; six hundred and eighty-one under ten years, and four hundred and forty-seven over ten years of age. That is, this slaughter of the innocents amounted to eighty-six deaths out of every one hundred, of children under ten years, the very age at which, in efficiently vaccinated communities,

the deaths are always at a minimum. Most of the deaths were in the summer months; season had no influence.

All of these cases resulted from the conductor of a Pullman car from Chicago, where small-pox then existed. He was admitted to the Hotel Dieu, a large general hospital, harboring two hundred patients, February 25, 1885, with the diagnosis of chicken-pox, and was discharged cured in three weeks. Two days later one of the servants had small-pox, and by the middle of April, there were sixteen cases. By this time the municipal hospital for infectious diseases was made ready for the small-pox patients, and all those not affected, over one hundred in number, were sent home in order to thoroughly disinfect and purify the now infected Hotel Dieu.

And so the seeds of the disease were spread broadcast through Montreal. Early in June crowds of people gathered in the procession of the "Fete Dieu," and again great crowds assembled at the funeral of the Roman Catholic Archbishop. Soon after these three events the cases increased rapidly in numbers, forty-six dying in July, and two hundred and thirty-nine in August. The fear of death lay hold of the people; hospital accommodation was provided, vaccination vigorously enforced, and removal to small-pox hospitals made compulsory. By a section of the ignorant classes these measures were opposed, riots ensued and the police stations and other municipal buildings attacked and much property demolished. The rioters were subdued by the police, aided by the growing death-rate, and by November and December 80,000 people, one-half of the total population, had been vaccinated, and the disease began to abate. Seventeen hundred houses were under police control; two hundred thousand dollars in money had been expended by the health committee, and the loss to trade and commerce and by sickness and death was inestimable.

The lesson of this great epidemic is that small-pox, once started in an unvaccinated population, has lost none of its old powers to maim and to slay, and is as virulent now as in the reign of William and Mary. New York City, if not thoroughly vaccinated, would to-day be repeating the history of Montreal, its trade destroyed and its ports closed to the commerce of the world.

The Montreal epidemic also shows the absolute importance of prompt notification of contagious diseases to the health authorities, and the necessity of always having ready in every city and county seat good and sufficient accommodations for separating at once the infected persons from the rest of the community. Finally, those "Benignant Autocracies," as Editor Shrady, of the *New York Medical Record*, has designated municipal health boards, should be clothed with ample powers for compulsory removal whenever the public interest requires it, and the disinfection or destruction of infected material and premises, and the supervision of persons who have been exposed to contagion.

In the various States of our Union there is little co-operation for the suppression of contagious diseases. The inhabitants of Porto Rico, under military rule, have been vaccinated, and are safer from epidemic small-pox than the people of St. Louis. The health officers of our cities would do well to follow the method of Dr. Reynolds, the efficient health commissioner of Chicago, who has caused to be widely circulated and voluntarily signed by physicians and influential citizens a "Vaccination Creed" which reads as follows:

"We, the undersigned, hereby publicly profess our firm belief, based upon

positive knowledge gained through years of personal experience and study of small-pox and vaccination :

1. That true vaccination, repeated until it no longer "takes," always prevents small-pox. Nothing else does.

2. That true vaccination—that is, vaccination properly done on a clean arm with pure lymph and kept perfectly clean and unbroken afterward, never did and never will make a serious sore.

3. That such a vaccination leaves a characteristic scar, unlike that from any other cause, which is recognizable during life and is the only conclusive evidence of a successful vaccination.

4. That no untoward results ever follow such vaccination; on the other hand, thousands of lives are annually sacrificed through its neglect—a neglect begotten of want of knowledge."

It would be well also to publish often the report of the English Royal Small-pox Commission appointed by the Queen in May, 1889, and which reported in 1896, after seven years' work, one hundred and thirty-six meetings, the examination of one hundred and eighty-seven witnesses and the investigation of six notable English epidemics. Upon this committee were the late Sir James Paget, Sir Wm. G. Hunter, Sir Wm. Savoy, Prof. Michael Foster, Dr. J. S. Bristome and Mr. Jonathan Hutchinson—a most notable array of knowledge and talent.

Their voluminous report brings the old well-known facts and figures in evidence. They show that in all the epidemics vaccination had been neglected; that sixty-four to eighty-five per cent. of the births had not been accounted for by the public vaccinating officers; that two-fifths of the unvaccinated who had small-pox died, while of the vaccinated less than four per cent. died.

The Commission reported that vaccination diminishes the liability to small-pox; that it makes the disease less fatal and of a mild and less disfiguring type; that the protection covers a period of nine or ten years; that vaccination restores the protection which lapse of time diminishes especially among the young, and that the protection is in proportion to the size and number of the scars.

These conclusions of the English Royal Small-pox Commission should be frequently reiterated in the medical and lay press, taught to medical students as the last and highest word of science in regard to the efficacy of vaccination, and should guide our advice and practice even in dealing with the present mild epidemic of our Western and Middle States.

The physician should also be prepared to meet on scientific grounds the opponents of vaccination, not merely the anti-vaccination pamphlets and monthlies which hail from Boston and the societies which circulate literature in the alleged defense of dumb animals and in opposition to scientific experiment under the guise of humanity, but also the writings of such men as Wallace, who discovered contemporaneously with Darwin the doctrine of organic evolution. The physician must be able to cope with his often quoted but weak article in the *British Encyclopedia* which damns vaccination with faint praise.

Let the physician prepare himself by the lucid text of Osler's "Practice;" by the vivid and extended article of the lamented Whittaker of Cincinnati in Pepper's "System of Medicine;" by the Milroy lectures of Monckton Copeman in "Vaccination: Its Natural History and Pathology." And he may go back to the epoch-making treatise of Jenner of a century ago, entitled "An inquiry into

the causes and effects of the variola vaccine, a disease discovered in some of the western counties of England, particularly Gloucestershire, and known by the name of Cow-Pox."

One may even read the Rider Haggard novel, "Dr. Theme," which in plot, language and locality is an eloquent and impassioned defense of vaccination, and an effectual counterblast to the English anti-vaccinationists. Not only this brilliant novelist, but the many-minded Kipling has placed his intellectual imagery at the service of the followers of Jenner.

And again let us commend and reread the sane, lucid and fervid article of Dr. John William Moore in the thirteenth volume of the *Twentieth Century Practice*. It is a marvel that so much is condensed in a hundred pages, so well classified, so pleasant in style, so convincing in its conclusions.

The peculiar characters of the present epidemic, occupying over three years of time, covering one-half of the North American continent, and including nearly forty millions of people, has been so well described by Welch of Philadelphia, Hyde of Chicago, Leroy of Nashville, Probst of Ohio, and numerous other health officers and epidemiologists, that it hardly seems necessary to go outside of our own territories except for historical details and the facts necessary to establish the relations of our "modified" or "mitigated" small-pox with the virulent plague as known and regarded for ten centuries past.

The ever-present danger of small-pox before Jenner's time is shown in the pages of an old private diary, quoted by Copeman. It reads as follows: I came on a curious passage in the letter of Mrs. Waller to her son, about his seven-years-old daughter. She wishes to know what dowry he is prepared to give. "I am not in haste to marry her, she is young enough to stay, but the danger is if she should catch the small-pox, or her beauty should change, it would be a great loss to her." Pepys is full of references to the horrors of small-pox, but I have never met with a passage that brings so keenly home the nearness of the risk of small-pox to early English home life.

In this connection also may be mentioned a record of epidemic of small-pox in the English town of Ware, in 1722. The population 2515, of whom 1601 are stated to have had small-pox before, and therefore only nine hundred and fourteen were susceptible to the disease during the course of the epidemic. Of these nine hundred and fourteen persons, six hundred and twelve were attacked and seventy-two died. The remaining three hundred and two persons who escaped the attack are spoken of in the town record in quaintly dogmatic fashion "as persons who are yet to have the small-pox." That is, everybody in England before vaccination times was expected to have small-pox.

To obtain an illustration of the full effects of an invasion of small-pox in a community where it has never existed, and therefore there is no general immunity resulting from former epidemics, we must look to some isolated locality which has escaped invasion. In illustration of this point we may take the case of Iceland, where from 1707 to 1709, out of the total population of 50,000, no less than 18,000 persons died of this disease.

The characteristic features of small-pox as it has manifested itself in New York City and vicinity the last two years, and which my son, Dr. Nelson D. Brayton, had excellent opportunities to observe during his service as resident physician for six months of 1901 in the small-pox hospital of North Brothers Island, may be worthy of mention for comparison. Speaking of the symptomatology of

the disease in a recent article in the current issue of the *Indiana Medical Journal*, he emphasizes the severity of the affection as it has existed in New York. From his paper I quote:

"Various theories have been advanced in New York to account for these phenomena, one of the most plausible ones being that the milder type now so prevalent in the West is an attenuated type of the disease; a tail end of a much severer epidemic which had already run its course, seen its day, and spent its fury in the far South, notably in Mexico and the West Indies. Here it infected some of our Spanish-American troops and on their return was scattered broadcast.

"A widely different condition pertained in the East. There a great sea-port city, New York, had been entirely free from the disease, while for over a year and a half it had been common in Western States. But, without warning, the storm-center broke. A couple of scattered cases were first reported to the New York Board of Health in August, 1900. Both were removed to North Brothers Island and both promptly died. Along toward the end of October several more cases were reported to the board of health and a grave epidemic had begun.

"These primary cases are supposed to have come from abroad, probably from Naples, where small-pox was still epidemic when the writer visited that city in July. Many more emigrants arrived from Italy, who also helped spread the infection, and as a result the disease obtained a good foothold in the city. The type of disease compared with that which had prevailed in the West was much more serious and graver in every way. The initial symptoms, the complications, particularly the eye and nervous symptoms, together with the resultant abscess, more nearly approached the classic symptoms of the disease, especially its wide-heralded fatality, there being a mortality of about thirteen per cent. in New York as compared with an insignificant ratio in the West. On account of this extremely low mortality I had some difficulty in convincing many of the New York Board of Health diagnosticians that we had real small-pox in the West, although I was perfectly familiar with epidemics in Indiana. A similar condition still holds good in many of the Western States, and I have found it especially true among some few of the Indiana physicians.

"Among the many diagnostic features of the lesion of small-pox is the locality of the eruption. It begins almost invariably on the face and forehead. A few papules, hard and unyielding, present themselves. It quickly spreads within twenty-four hours to all regions of the body. The palms and soles are often affected, although this has not been the common condition in this locality. Likewise the delirium is never so profound. The eye symptoms are extremely rare in the western form, only a few cases being reported in Indiana, while at North Brothers Island conjunctivitis was one of the most common afflictions; corneal ulcer was very frequent, at least three per cent.; and total blindness occurred in quite a number of cases. Despite the zealous care with which these conditions were sought for and combated when discovered, but little was effected by treatment when the patient was gravely sick. The vesicle which appears on the eye differs in no wise from any other small-pox vesicle, and undergoes the same kind of pathological change—the papule turns into the vesicle, the vesicle to the pustule, and the pustule very often into an anterior ophthalmitis, with all its accompanying dangers and often a loss of vision. Most of these eye cases showed albumin in the urine, a fact that is rarely emphasized in text-books

and often overlooked except where rigid and systematic examinations of the urine are made.

"Delirium was also a marked feature of the New York cases. At one time I had five of the patients in one ward in straps as a result of this complication. More prevalent in males, it occurs also in females. This delirium is of a most pronounced type, and of the most active form; the patients are unrestrainable, and more uncontrollable than in typhoid, scarlet fever or erysipelas. I have seen as many as five men necessary to subdue one patient. It is far more common in those addicted to the use of alcohol, although the amount of alcohol that the person had been accustomed to take does not make much difference. It occurs as a result of the ingestion of only a very small amount of whisky, and is of the most violent form. Persistent mania may occur, but is very rare. I know of but one case from actual experience.

"So acute and so extreme may this delirium become that I may cite the instance of a young girl, aged fifteen, whom one and one-eighth grains of morphine in conjunction with one-fiftieth of hyosein, given at intervals within twelve hours, utterly failed to quiet, and who seemed as restless in the morning as she had been the night before.

"Boils and abscesses were the most important sequelæ, and while they may delay the convalescence of the patient to a certain degree, they have never been very dangerous, although sometimes quite disfiguring, especially when occurring on the face and neck. Curiously enough, in all severe cases there seems to be a tendency for them to be absolutely bilateral in their distribution. Whether this shows a peculiarly sensitive condition of the lymphatic system, and especially of the lymphatic glands, in small-pox, cannot be stated; and naturally, until we have better insight into these phenomena, the reasons therefor must be entirely problematical and speculative.

"And so we find that small-pox is not in all parts of the United States a mild disease, and one which may be held in contempt by the laity or passed off as a mere idle nothing. Because in the western form we see nothing in its symptoms, complications or sequelæ to annoy or worry us, we should not abate our interest in small-pox or discontinue in any degree what ever methods have been employed to prevent its spread or contagion and stamp out its infection. In the epidemics I have seen with my father in Indiana, I have never seen any serious deformities or results. Blindness has been only noticeable by its absence; severe scarring has been exceptional, and pitting or pocking of the face has been about the only sequel which has been worthy of consideration."

In Indianapolis there have been but three instances of death as a result of the disease in the last three years, although we have had over five hundred cases, costing for their care and the control of the infection some \$25,000. In Indiana we have had between four and five thousand cases with only twenty deaths reported, and several of these resulted from complications.

Dr. Charles Ferguson, of Indianapolis, for the last two years diagnostician to the Indianapolis Health Board, has kindly furnished me the following notes on the diagnosis from chicken-pox:

In the present epidemic chicken-pox has been the stumbling-block of the physician. Small-pox has been mistaken for varicella more often than any other eruptive disease.

The difficulty of diagnosis has not been made easier by the study of the

older text-books and some of the later literature on the subject. Typical cases of variola stand in marked contrast to typical cases of varicella, and present no difficulties. So various and typical are the manifestations of the eruptions of small-pox in the prevailing epidemic, that the expert diagnostician may easily find such gradations in the manifestations of its lesions as to lead almost imperceptibly into varicella-like lesions.

Variola-modificata, or varioloid, as it is erroneously termed, may pursue such a typical course as to make its resemblance to varicella in some of its modifications extremely striking. Again, authorities are almost unanimous in declaring that chicken-pox is a disease of childhood, and that with the advent of puberty immunity is conferred.

A study of the history of small-pox shows that it is as much a disease of childhood as varicella. Thanks to vaccination, quarantine and disinfection, the disease, unlike its congener, is no longer endemic. In pre-vaccination times seventy-five per cent. of the deaths from small-pox were among infants.

Varicella is a disease of childhood because of its endemic nature, our ignorance or lack of interest in its prevention, and because of the immunity conferred by one attack. An individual who has reached puberty without an attack of chicken-pox has escaped because of the lack of susceptibility at the time of a possible exposure, and not because of a natural immunity conferred by puberty. Exceptionally we find persons who have never been exposed to the contagion of varicella in childhood or upon whom one attack has possibly not conferred immunity.

The writer has, in the last two years, seen four cases of varicella in patients who have passed the age of puberty. One case, a boy of seventeen years, one a man of thirty-two, a girl of eighteen, and a negro, male, aged twenty-seven. In one case the father of two children was found well covered with the eruption of varicella, contracted from his child, who was then in the decrustating stage of the disease; while another child, an infant, was well marked with the polymorphous lesions of chicken-pox in its first stages. Another case, a negro, was sent to the isolation hospital suffering from what was believed to be a doubtful case of variola. He was well covered, hands, face, arms, legs, trunk, palms and soles, with large, well-filled pustules, that almost completely collapsed upon puncture. Fifteen days after his admission to the hospital he was suddenly attacked with the well-marked prodromes of variola, followed by a typical eruption that pursued the usual course.

Most confusing are the cases of small-pox where the eruption does not all appear at once. By this is not meant the successive appearance upon the face, trunk and legs that we find in typical attacks, but an apparently new crop of papules that appear on any part of the body along with the earlier, and by this time vesiculated, papules. Thus papules, vesicle and crust are presented at the same time. To see one of these cases at this time, particularly when the lesions are, many of them, abortive, is most confusing to even an expert. Keeping in mind these aberrant types of variola, the careful physician would make no mistake. Taking the typical case as his guide and the history of the invasion, a little time spent in observing some papules and vesicles in their development will make the diagnosis. A careful study of the lesions will show that, while many are superficial, others are present that are deep-seated, involving the deeper layers of the skin.

Variola is distinguished from varicella by the prodromal symptoms—nausea, chill, headache, backache and fever—which on the third or fourth day disappear as rapidly as they developed. This subsidence of the acute onset is coincident with the appearance of the initial lesions or papule upon the exposed parts of the body. In chicken-pox there is rarely any notable constitutional disturbance before the appearance of the lesions upon the protected portions of the body. Mothers are frequently not aware of the illness of the child until they discover the eruptions upon the body in dressing or undressing it. In two of the adult patients of the writer the patients stated that they did not know of the eruption until it was revealed in undressing.

In varicella the temperature is, as a rule, not elevated before the appearance of the vesicles, and is maintained for several days during their appearance and development. In variola the patient expresses himself as feeling well or better, as the subjective symptoms disappear with the appearance of the papules. In chicken-pox he complains of nausea, headache, etc., with the appearance of the eruption.

The early appearance of papules upon the fingers or upon the ears is of great value in variola. Histologic differences in the lesions are important. The deep-seated, indurated papules of variola are peculiar to the disease, and are markedly different from the superficial thin marked vesicle of varicella. The vesicle of small-pox begins in the apex of the papule, and, when fully developed, is multilocular, being divided by various septa into microscopical pockets. When punctured, therefore, the vesicles do not collapse.

In varicella the vesicle develops in a few hours, and is soft and velvety to the touch, collapsing more or less completely in most instances upon puncture, is easily broken by abrasion, exposing excoriated areas.

The uniformity of the development of variola is an important difference. The successive crops of macules, vesicles, pustules, together with excoriated areas and crusts observed in the same parts of the body at the same time, together with the predominance of the lesions on the trunk, make up a clinical appearance greatly differing from that seen in variola.

Umbilication is sometimes apparently lacking in abortive types of small-pox, while in chicken-pox there is often an apparent umbilication, due to the formation of a central crust or necrosis, that closely simulates the depression in varicellous pustules.

Previous attacks of chicken-pox, as revealed by the characteristic “pits” to be found in the face or trunk, or recent vaccination as shown by a good scar, are aids to diagnosis.

In all cases of doubt, wait, as the time element is sometimes the only thing that will clear up the diagnosis.

Regarding the occurrence of small-pox in vaccinated people, the following is the observation of all epidemics since vaccination was first employed:

Osler states (1895, page 68) vaccination is not claimed to be an invariable and permanent preventive of small-pox, but in the great majority of the cases it renders the person for many years insusceptible.

Jenner believed that vaccination conferred life-long immunity, and many people of our day and some physicians also have this false view.

In this connection we have the remarkable observations of Moore on the Dublin epidemic.

The Dublin epidemic was studied by Dr. Moore. There were 2815 cases from April 1, 1876, to March 31, 1881, a period of five years.

Discrete cases, 1625. Of these, 1539 were vaccinated, 86 not. There were 14 deaths only—less than 1 per cent., and of these, 7 died of sequelæ.

Confluent cases, 857. Of these, 552 were vaccinated and 305 not. There were 344 deaths, equal to 40 per cent. Of the vaccinated, 23 per cent. died; of the unvaccinated, 71 per cent. died.

Malignant cases, 333. Of these, 212 were vaccinated and 121 were not. Deaths, 255, or 76 per cent.; vaccinated, 69 per cent.; unvaccinated, 88½ per cent.

Of the 2815 patients, 2303 were vaccinated and 512 were not. There were 611 deaths, 22 per cent. of the whole. Of the deaths, 286 were vaccinated and 325 were not.

The great majority of these cases—over 90 per cent.—had only the childhood vaccination. They had been vaccinated but once, and were poorly protected.

Discussing these statistics, Dr. Moore says that they must be startling to those who believe vaccination is a certain preventive against small-pox. But they surely teach that vaccination, like a previous attack of small-pox, is only a temporary, and therefore an imperfect, preventive against small-pox. Secondly, they teach that the vaccination should be repeated at least once in a lifetime to keep up its protective efficacy. Thirdly, there can be no doubt as to the lessening of the severity and fatality of small-pox, due to even one vaccination.

In pre-vaccination times, little more than a century ago, the yearly mortality in England and Wales was 3000 deaths to the million people, which with the present population would be 87,000 deaths a year. But in 1890 there were but 15 deaths in England from small-pox. From 1881 to 1890 the average was 1227 deaths a year in England—that is, one-seventeenth of the death-rate of pre-vaccination times. We have repeated these figures, which occur in another part of this paper, purposely, as they should be in the grasp and mind of every believer in medicine and friend of vaccination.

As to the reasons of the mildness of the present epidemic, opinion varies; but all are thankful that most of the cases are of this mild type. Confluent and hemorrhagic forms do occur, however, and with the old-time fatality.

There may be a social hereditary immunity acquired, as in other diseases. This may be the result of generations of vaccination, and perhaps due to the natural law of survival of the fittest. But to deny the nature of variola because nearly all the cases are mild is to thresh old straw, to lead the people to confusion, and to invite commercial disaster and death if a severe form of the disease should become prevalent in the country.

CLINICAL REPORTS.

DOUBLE OPTIC NEURITIS OCCURRING DURING LACTATION.

BY JOHN GREEN, JR., M. D., of St. Louis.

Mrs. J. P. M., housewife, aged twenty-six years, came under observation August 15, 1901. Family history negative, with reference both to constitutional and ocular disease. As a child the patient was considered "delicate," and during school life had frequent attacks of migraine accompanied by "bright flashes of light" (scotoma scintillans?). Apart from a tendency to constipation, her general health has been excellent. Menstruation began at fourteen and has always been regular. She married at the age of twenty-four, and has a vigorous, splendidly nourished baby, five months old. Parturition was easy, the child being born before the arrival of the accoucheur. The puerperium, however, was prolonged to three weeks, owing to "paralysis of the bowels," which necessitated the employment of cathartics and enemata. There have been no miscarriages.

The patient has had a plentiful supply of breast-milk, and has suckled the infant uninterruptedly. Menstruation was re-established in June, 1901. Since the end of the puerperium the patient has considered herself entirely well, and has been able to perform the rather arduous household duties which fall to the lot of a farmer's wife. Syphilitic and gonorrheal infection are strenuously denied.

Ocular History.—Prior to the present attack the eyes were considered "perfectly strong." August 5, 1901, the patient noticed that the eyes "pained on looking strongly to the right or left or up or down," and "felt a little sore to the touch." The situation continued unchanged up to August 8th, when the sight of right eye was accidentally discovered to be "very dim." Four days later (August 12th) the patient awoke to find that "the sight of left eye had gone out during the night—could no longer find her way around the room." August 13th, the husband noticed that the right eye seemed to be more prominent than the left, and both "stared vacantly" into space.

Ocular Examination (August 15, 1901).—The eyes are widely opened, and wander vaguely in different directions. The right eye is slightly more prominent than the left. Great difficulty is experienced in locating the examiner's finger, held 40 cm. in front of the eyes. Both pupils are dilated, the right rather more than the left. Direct light stimulation evokes a sluggish and rather faint response of the right, but an immediate and active response of the left pupil. There is complaint of pain on attempted turning of the globes in any direction, and in consequence the movements of the eyes are somewhat restricted.

R. Eye—V., acute perception of light.

L. Eye—V., $\frac{1}{60}$ + (a little excentric).

Ophthalmoscopic Examination.—R. Eye.—Media clear. Optic papilla hyperemic and swollen, the vertex projecting into the vitreous 3 D = 1 mm. above the general fundus level. The margins of the disk are blurred, the retina immediately surrounding the disk exhibiting a slight haze. Veins dilated and tortuous. Macular region clearly visible and shows no lesion.

L. Eye.—The same conditions obtain as in the right eye, except that the swollen nerve-head is only 2 D. = $\frac{2}{3}$ mm. above the retinal level.

By candle projection-test there appears to be no peripheral contraction of either field.

Pulse, 80; respiration, 20; temperature, 98.4° F.

Urinalysis.—Sp. gr., 1018, clear, acid, no albumin or sugar.

(Urinalyses were made on every alternate day up to September 15th, and on no occasion was any abnormal constituent discovered.)

The patient was sent to St. Luke's Hospital and placed in a moderately darkened room. She was given immediately a calomel purge (gr. v.) followed in eight hours by effervescent citrate of magnesia (℥ viij). The exhibition of calomel (gr. $\frac{1}{10}$ every hour) was continued for five days until a moderate pyalism ensued. The mercurial treatment was then continued with corrosive sublimate (gr. $\frac{1}{10}$ four times a day). Apart from interdiction of fresh fruits there were no dietary restrictions. She was permitted to continue suckling the infant.

The case was seen in consultation by Dr. Given Campbell, who was unable to detect, after exhaustive examination, any sign indicative of central nervous disease. There was, also, no evidence of cardiac or respiratory lesion.

The ocular conditions, both subjective and objective, remained *in statu quo* for about a week. There was no pain in or about the eyes. Occipital headache of moderate severity and lasting several hours occurred twice. There was no vertigo, nausea, or vomiting. Vision perhaps slightly improved in right eye, but fell off to "perception of light" in left eye. The sole encouraging feature of the case at this time was the evidence of intact peripheral retinal function, as shown by the recognition of the direction of a lighted candle in all parts of the field.

August 22d the patient was greatly delighted to find that she could discern objects, such as a tumbler, a towel, an orange, the baby's hand, etc., when held to her extreme right, the gaze meanwhile being directed straight forward. Recognition was wholly by appreciation of the object's general contour, as whatever vision she possessed was strictly peripheral, and the color sense was totally in abeyance. From this time the improvement in vision was reasonably rapid, especially in right eye, and by August 28th some degree of central vision had become re-established. The left eye was persistently laggard in this respect, and, as subsequent perimetric measurement showed, there was probably some organic lesion of the papillo-macular bundle in the optic nerve.

Concomitant with the visual improvement, ophthalmoscopic examination showed a subsidence of the swelling of the papilla, a reduction of its hyperemia, and a restoration of its normal marginal outline. Perception of color returned slowly, and by September 30th was practically normal, with the exception of some confusion in the differentiation of reds and browns.

The patient left the hospital about September 5th, with vision restored sufficiently to enable her to find her way about without difficulty. During the three weeks' hospital residence the highest temperature reached was 99.6° F.; the pulse ranging between 70 and 86, and respiration between 18 and 24. The sublimate was continued (gr. $\frac{1}{10}$ ter die). On September 10th examination showed the ocular condition as follows: Pupils equal, 4.5 mm. diameter, reacting actively to light and accommodation: R. Eye—V., $\frac{15}{192} +$ without correction. L. Eye—V., $\frac{3}{38}$ (excentric).

September 12th—R. Eye—V., $\frac{15}{150}$. L. Eye—V., $\frac{10}{150}$ (excentric).

September 15th—R. Eye—V., $\frac{15}{96}$. L. Eye—V., $\frac{15}{92}$ (excentric).

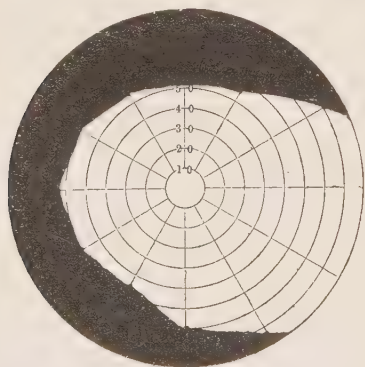
September 19th—R. Eye—V., $\frac{15}{48}$. L. Eye—V., $\frac{15}{120}$ (excentric).

At this time the ophthalmoscope showed a complete subsidence of inflammatory activity in the optic disks, which, however, were beginning to show a positive pallor, especially in the temporal halves. Perimetric measurements of the field for white showed no peripheral contraction in either eye, but revealed the presence of a small, partial, central scotoma in left eye. (See charts.)

In view of the evidences of beginning atrophy, strychnine sulphate (gr. $\frac{1}{13}$ in twenty-four hours) was prescribed in conjunction with the sublimate; later the strychnine was increased to gr. $\frac{1}{7}$ in twenty-four hours.

October 4th—Measurement of the cornea by the Javal-Schiötz ophthalmometer showed a vertical astigmatism in either eye in the neighborhood of 1D, and careful trial showed the refraction to be: R. Eye—Ah. .5 D; Mo. Vertical, V., $\frac{1}{5}$. L. Eye—Ah. .5 D (?); Mo. Vertical, V., $\frac{1}{5}$ (excentric).

The patient was allowed to return to her home October 5th, with instructions to continue the sublimate (gr. $\frac{1}{10}$ ter die), and strychnine sulphate (gr. $\frac{1}{7}$ in twenty-four hours). During October and November she was seen at intervals of one to two weeks, visual tests showing slow but positive gain in either eye.



Right Field.



Left Field.

December 22d—R. Eye—V., $\frac{1}{5}$ without correction. L. Eye—V., $\frac{1}{4.8}$ without correction. With the ophthalmoscope both disks appeared pale, the left rather paler than the right. Arteries were somewhat attenuated; fundus otherwise normal. Sublimate reduced to gr. $\frac{1}{16}$ ter die; strychnine continued as before.

February 16, 1902 (latest observation)—R. Eye—Ah. .5 D; Mo. Vertical, V., $\frac{1}{5}$ +. L. Eye—Ah. .5 D; Mo. Vertical, V., $\frac{1}{4.8}$ to $\frac{1}{3.8}$. Perimetric measurements showed practically the same conditions as obtained September 15, 1901. In other words, during a period of five months there had occurred *no peripheral delimitation of the visual fields*; a fact which is, of course, of favorable prognostic import. To all appearances, also, the central portion of the retina of the left eye was beginning to regain its function. Both disks showed improved color. The sublimate was discontinued, strychnine being continued (gr. $\frac{1}{7}$ ter die).

Sandmann¹ mentions optic neuritis as sometimes occurring during lactation, the condition, according to Uhthoff's researches, being due to toxins. The case now reported would seem to belong to this category.

¹ Changes and Diseases of the Eye During Pregnancy, the Puerperium and Lactation (*Muench. Med. Wochenschrift*, January 25, 1901).

ABDOMINAL TUMORS.

BY JESSE S. MYER, M. D., of St. Louis, Missouri.

(CONCLUDED FROM FEBRUARY ISSUE.)

ABSCESS OF THE LIVER, POINTING POSTERIORLY.

G. M., age forty-two; farmer; had typhoid fever in September, 1901. At the end of the first week of his illness he experienced a sharp shooting pain in the right axillary line, at the level of the eighth intercostal space. Though the acute pain never re-occurred, he had throughout his illness a "sore spot" at this point, where pain could always be elicited upon pressure. He was not able, in fact, to lie on this side. He was in bed for five weeks, recovering from the typhoid fever without any further complications. He experienced some "pain in the back" from time to time during his convalescence. This, together with lack of physical strength, which seemed reluctant to return, prevented his resuming work. About January 1, 1902, two months after his recovery from the fever, he felt slight pains in the region of the former attack, and almost simultaneously was cognizant of a "swelling on the back." This gradually increased in size, and with it the pain. He felt as if there were "something there which should come out;" in fact, as if "something were coming to a head." He had had no chills, and thinks he had no fever; bowels were constipated. He had no difficulty in breathing, nor other symptoms referable to the lungs. During the last three weeks he had lost weight and strength rapidly. Had never been icteric.

Physical Examination.—Anteriorly the liver dullness extends from the lower border of the fifth rib to a point three fingers' breadth below the free margin of the ribs; posteriorly the diaphragm was pushed up to the ninth intercostal space. There was no splenic enlargement or involvement of other abdominal organs. Pressure over the liver at any point produced pain.

Just posterior to the right axillary line between parallel lines drawn from the ninth and twelfth dorsal vertebra was a tumefaction, oval in shape, four and one-half by three inches in diameter, elevated above the neighboring surface to the extent of one inch. The ribs were pressed outward and lay over the mass; fluctuation could not be elicited; there was slight pitting on pressure. The patient's temperature ranged from $99\frac{1}{2}^{\circ}$ to 101° .

The urine contained no peptones or other abnormal constituents. The feces showed nothing abnormal, either microscopically or macroscopically.

A leucocyte count numbered but 8000.

A diagnosis of abscess of the liver was made. The introduction of a needle revealed the presence of a reddish-brown, creamy pus.

An incision and the resection of two inches of the ninth and tenth ribs liberated over a quart of pus. One rib was found slightly necrosed.

The chief point of interest presented by this case was the position of the tumor produced by this abscess. In seeking the surface abscesses are naturally expected to take the line of least resistance; in this case, instead of "pointing" along the lower border of the liver, or the diaphragm, it sought an outlet at the one point where there was greatest resistance.

CORRESPONDENCE.

BERLIN LETTER.

EDITOR INTERSTATE MEDICAL JOURNAL:

"German medicine" has every reason to be gratified with its laurels and the recognition accorded it during the first year of the twentieth century. That grand old master, the hero of modern medical science, Rudolf Virchow, was the central figure of a jubilee such as has rarely been tendered a prince. He who has been spared to give us guidance and inspiration was granted the privilege of witnessing the greatest concourse of medical talent in the world, brought together in his honor, who revered him as the leader of them all. Those favored in attending this festival returned home awed and filled with admiration for this octogenarian, whose labor has brought forth so many blessings to humanity. From the morn of one day until the dawn of the next he received with grace all of the uninterrupted greetings tendered him. And if one saw him at half-past one in the morning, listening with the same obliging smile to the words of the last orator, it was easy to believe his statement that these festivities were a delight, and that he was already thinking with pleasure of the new celebration awaiting him at Cairo, Egypt. He is an unvarying optimist, and it is his nature to anticipate coming pleasures. When we were together at the Congress of German Naturalists and Physicians in Hamburg in September last, he sat looking out on the islands of the Elbe, beautiful in the light of the setting sun, and this picture awakened memories of the happy days he spent on the Nile, and his mind was flying ahead in delightful anticipation of the hours he will spend again in Cairo, at the International Congress of Physicians, where he will be the central figure and whither he will go by special invitation from the Khedive.

But impartial fate denies many hopes! He now lies confined to his bed, suffering with a fractured leg. Egypt for him is more distant than ever before. May he soon recover, and may he be spared to us for many years!

The beginning year of the new century brought another recognition of German medical science. I refer to the awarding of the Nobel prize to Behring, the inventor of the antitoxic serum of diphtheria and of serum therapy in general.

In April of this year Ernst von Leyden is to celebrate his seventieth anniversary. The committee having in charge the arrangements for this occasion are preparing two events: The first, the unveiling of a marble bust of the great clinician in the new amphitheater of the First Clinic for internal medicine in the Charite Hospital in Berlin; the second, the collection of a large fund in von Leyden's name, the same to be at his disposal for the purpose of aiding investigations in some field of medicine.

Our great surgeon, Ernst von Bergmann, has just been honored by appointment to the position of privy councillor to the Emperor, with the title Excellency—a distinction by far the highest that is ever vouchsafed a medical man.

From every point of view we should be gratified with our advancement. *Dat Galenus opes et honores*, to-day, as in former times. There is another honor awaiting Ernst von Leyden: the government will establish in connection with the First Medical Clinic an institute for the investigation of cancer, consisting of two

wards with ten beds in each, and a laboratory for microscopical, chemical and experimental research. The Reichstag has appropriated 53,000 marks for this purpose. It is not known why this institution, which must necessarily shelter surgical cases, has been attached to a medical clinic. It might be explained because of the fact that von Leyden once found in the ascitic fluid from a case of liver carcinoma an organism resembling an ameba, which could not properly be classified by the best authorities. It, therefore, received its name from the two investigators to whom it revealed its existence, and so has been called the *Leydenia gemmipara Schaudinn*. I once had the pleasure of looking upon this conjecturally guilty and minute organism with the respectful awe which was its due, but it has never since been seen.

Schweninger is promulgating the theory that the primary condition in carcinoma is a general infection of the body, and the visible and palpable tumors are merely secondary effects. They represent a kind of dumping ground for the infectious principles of the disease, relieving the general system of this poisonous matter. It is, therefore, Schweninger's idea that it is wrong to remove such tumors, because they really represent a healing process. Perhaps they will test this theory in the wards of the new institute, instead of using the knife. They may possibly fill the institute with those beyond help by the knife. Well, *qui vivra verra!* I will certainly report whatever progress is made in this institute.

It seems that the cancer bacilli or protozoa are more energetically looked for than ever before. The installation of a government institute for the investigation of protozoa looks as if we are going back to the parasitic conception of this disease, in spite of the opposition of Virchow and his followers. At the last Congress of German Surgeons one of the cancer parasite detectors, Dr. Nils Sjoehring, of Lund, Sweden, was rather roughly handled by Virchow's assistants, O. Israel and Juergens, who said: "To hunt for protozoa is a search without an objective point in infinite space."

But this condition cannot persist very long. We will soon see cured cases of *incurable* cancer, now that the blessing of Christian Science, has reached Berlin. For this new creed, thanks to you, America! These people have erected their tabernacle in the fashionable West End of Berlin, and, sad to relate, the pilgrims worshiping at the shrine are not of the lowest and most ignorant classes of society. The situation is certainly a serious one, even in its absurdity. It is strange that there is nothing so stupid that it cannot gain followers. "No knife, no medicine," is the bait which will always give a good catch. A reaction, however, has set in. One of our brave clergymen has already thundered against the mischievous creed of Christian Science, which has nothing in common with Christianity or real religion.

Finally, I wish to report to you two lectures which created quite a sensation. W. A. Freund, the well-known gynecologist of Strassburg, read a paper before the Berlin Medical Society on "Anomalies of the Thorax in Phthisis and Emphysema." He reported that he had observed that in all cases of tuberculosis of the pulmonary apices there was always an ossification of the first costal cartilages, with ankylosis of the sterno-costal articulation. He sees in this rigidity the main cause for the more frequent involvement of the pulmonary apices in the tuberculous process, the primary cause being an excessive anemia of the parts. He came to the conclusion, therefore, that in all such cases where this ossification has taken place, it is justifiable to resect the rib in order to restore

the expansibility of the lung. The discussion which this report evoked was not fully in accord with the essayist's views.

In the Society for Internal Medicine, Prof. Senator read a paper on "Colics, Inflammations and Hemorrhages of the Kidneys," referring to the eminent work of I. Israel, "Surgical Treatment of Diseases of the Kidneys." He approached the question as to what extent colics, hemorrhages and chronic nephritis may be cured by incisions made into kidneys. Israel made incisions into kidneys in a series of cases for diagnostic purposes, expecting to find a stone, a tuberculous focus or a tumor. In some of his cases he could not detect any cause for the hemorrhage or pain. The cases recovered, however, the hemorrhages and pains disappearing. He reconciled these results and the true nature of the trouble in this way: He claims that the pain is due to a congestion of the kidney, which is relieved by incision. The congestion of the kidney is explained on the basis of an exacerbation of a chronic nephritis, which condition cannot be excluded, even in the absence of casts or albumin from the urine. By means of this incision he cured several cases of chronic nephritis where the existence of this disease was proven by microscopical examination of the urine. Senator claimed in his paper that in chronic nephritis both kidneys are affected, and hence the cure cannot be ascribed to the incision which is made into but one kidney. Klemperer, in discussing the paper, called attention to the existence of angio-neurotic hemorrhage, citing menstrual hemorrhage and hysterical hemoptysis and hemoptoe as noteworthy examples. Casper, on the other hand, explained some of these cases by spasm of the ureter. The majority of the internal medical men were against the operative procedure, and advised surgical interference only in cases showing severe and unfavorable symptoms.

Berlin, February, 1902.

DR. HEINZ WOHLGEMUTH.

EDITORS INTERSTATE MEDICAL JOURNAL:

Concerning the article "Penetrating Wounds of the Heart, with Suturing of the Wound," etc., by Dr. H. L. Nietert, published in the December issue of your journal, I will say that the doctor has made some little mistakes in regard to the literature on such cases.

Capellen was not the first, as the doctor states, to attempt the operation, in 1896. Dr. Daniel H. Williams, surgeon to the Cook County and Provident Hospitals, Chicago, Illinois, was the first known operator to attempt the operation.

James Cornish, an expressman, twenty-four years of age, was brought into the Provident Hospital, July 9, 1893, with a stab wound about one and three-fourths inches in length, the knife penetrating the fifth costal cartilage to the left of the sternum, the pericardium and the apex of the heart.

In the operation which followed the next morning, July 10, 1893, both wounds were sutured.

The patient recovered and was well and at work three years after, when seen by the operator.

The indexed Catalog and Mediens of the National Medical Library, surgeon-general's office, Washington, D. C., at that time did not give a single case of suture of the human heart.

Dr. Williams deemed his the first case, and published it as such in the *Medical Record* of March 27, 1897.

J. WILLIAM McDOWELL, M. D.

St. Louis, February 15, 1902.

EDITORS INTERSTATE MEDICAL JOURNAL:

In reference to the letter of J. W. McDowell to which you have asked me to make reply, I beg to say that I have made no mistake when I omit the case operated upon by the Chicago surgeon. If the doctor will familiarize himself with the article in the *Medical Record*, to which he refers, he will find that the case cannot be included in my list, which treats only of wounds penetrating into the cavity of the heart.

The title of Dr. Williams' paper is "Stab Wound of the Heart and Pericardium—Suturing of the Pericardium." It states that a wound one-tenth of an inch in length was found in the heart, which did not bleed. And there is nothing in the article that indicates that the wound penetrated into the cavity of the heart, nor was it sutured. The parietal layer of the pericardium, however, was sutured.

The case cannot be included in the list of penetrating wounds, because it belongs in a class by itself. The non-penetrating wounds are so different as to treatment and prognosis, that they cannot very well be classed with wounds penetrating into the cavity. Non-penetrating wounds, unless the coronary artery has been injured, usually require little if any surgical interference, and almost always get well. Whereas wounds extending into a cavity require urgent surgical treatment or they most invariably prove fatal.

The doctor is therefore mistaken when he considers Dr. Williams' case in the same class with the twenty-seven cases of "penetrating wounds of the heart, with suturing of the wound," that I have recently collected.

Suturing of the pericardium, which was the extent of the operation in Dr. Williams' case, is not so rare. The records of this hospital alone show six such cases, with five recoveries. The first dates back to September 6, 1891, and was operated upon by Dr. Dalton, then superintendent of the City Hospital. A report of this case will be found in the February number of *The Annals of Surgery* in 1895. This case, as you see, was operated upon two years before the Williams' case appeared. The second case was one operated upon about eight years ago by Dr. Marks, and reported about that time in the *Fortnightly Journal*. The other four came under my observation.

Yours very truly,

H. L. NIETERT, M. D.

St. Louis, March 1, 1902.

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EDITORIAL COMMENT.

NEUROLOGICAL NOMENCLATURE.

The tendency to differentiate too minutely the various clinical manifestations of any disease or group of diseases into separate types is not to be encouraged, unless a clearer conception of morbid conditions can thereby be obtained. The necessity, it might almost be said, the instinct, to classify is a very fundamental thing in questions of human knowledge. The complexity and uncertainty of a classification may often be taken as the measure of the lack of absolute knowledge which we possess on that subject. Yet the first step towards a more definite conception of a mass of known facts is to be found in an analytic view of them, and a system of classification is nothing more or less than the expression of such an attempt. It is probable that all classifications, whether in medical knowledge or in that of other branches, must finally undergo a process of simplification, and it generally remains for some great synthetically talented mind to perform such a service. The confusion which prevails at present in that great group of diseases of the nervous system commonly known as "neuroses" is due in the main to badly selected terms used in description. The exact nature of each one of these terms has not been adequately defined. To many the terms "neurasthenia" and "hysteria," are interchangeable. Their distinction is based primarily upon the sex of the individual under consideration. Hysteria is female, neurasthenia, male. To others, again, groups of symptoms under these heads are called "functional," thus giving to this term the importance of a definite, clinical

disease. This type obtains its right of existence in the supposed absence of anatomical lesions underlying it. To others, again, a great part of the neuroses appear mainly as simulations, or, as it is more charitably described, as products of the imagination. It is often puzzling to know just exactly what is meant when the one physician calls a paralysis functional and another the same thing hysterical, or when a third refers to a group of painful symptoms as psychical, and another calls the same group neurasthenic. There is obviously either a total misunderstanding of the symptoms themselves, or there is a needless multiplication of terms. Upon closer examination it is found that the fault is mainly one of miscomprehension. Neurasthenia and hysteria are two well-defined clinical types, in many respects the direct antithesis of one another. They may occur together, it is true, but only in the sense of a complication, as in other diseases. If it is remembered that there is a grave doubt concerning the existence of a mono-symptomatic type of hysteria, an isolated symptom will not be so hurriedly diagnosed as hysterical, when by that we imply the existence of hysteria as a general condition. The use of the word functional is unfortunate, because almost any affection of any organ must result in disturbances of the function of that organ, for it is only by its functional abnormality that its morbid condition can be recognized. If the term functional is retained at all, it is evident that it must be given a more restricted meaning, for it is obvious that its application to hysteria or neurasthenia is only generic, and can serve no other purpose. If it is used at all, it should be restricted to those conditions which result in a disturbance of the function of an organ, where that organ, or part affected, is not involved anatomically or physiologically in the process at hand. For example, if there is a painful dislocation of a joint, the muscles of that joint or of the extremity in the neighborhood of the joint are functionally paralyzed, because, if they were put into use, pain and discomfort would naturally follow. In other words, functional paralysis in this sense would mean simply a conscious inhibition of motion which afterwards may become unconscious. Of simulated symptoms there is not much to be said, except that a motive must be discovered, either upon material or other grounds, before such diagnosis can be made. The various vague disturbances met with which cannot be classed with any of these before mentioned are to be regarded as evidences of the presence of a general neuropathic tendency or nervous instability. The term "Nervosität," of the Germans, of which no adequate translation but that of "nervousness" exists, may be the general term given to this scattered group of symptoms. According to this provisional scheme the neuroses may be divided into the following groups: Hysteria, neurasthenia, functional symptoms, and simulated symptoms. The term "nervousness" may be used merely as indicating a tendency towards the possible development of the two main groups, neurasthenia and hysteria.

THE RADICAL MASTOID OPERATION.

The simple opening of the mastoid dates back as far as the seventeenth century, but the importance of the surgical treatment of chronic middle ear suppurations was not known until 1873, when Schwartze and v. Troeltsch published their anatomical and pathological findings. Schwartze opened the mastoid antrum through the mastoid process, thus establishing a counter opening through which the middle ear could be irrigated and stagnating secretions removed. In a great many cases the results were not satisfactory. In 1889 Küster, in addi-

tion to the opening of the mastoid antrum, removed the posterior wall of the external auditory canal, and soon after v. Bergmann advocated also the removal of the outer wall of the attic, making one cavity out of the middle ear, mastoid antrum and mastoid cells, which can be easily explored and all diseased bone and tissue removed. Since then various methods of operating have been advocated, but all have the same end in view.

The indications for so radical a procedure cannot be sharply defined, hence it is one point at which many authors are at variance. Some advocate the operation in all cases of long standing, on the ground that the mastoid process and antrum are often seriously diseased when there are no other clinical evidences, aside from the discharge, and that not only is the life of the patient in constant danger, but also the good results of the operation are greatly lessened by waiting for more pronounced symptoms. While others advise the operation only when carious bone is known to be present, and then only when other methods of treatment fail, on the ground that cases of suppurative middle ear trouble have been known to exist from childhood to old age. While conservatism should be the rule in those cases, we are inclined to think that the latter has been carried to the extreme, and the lives of patients needlessly sacrificed. The post-mortem reports from Guy's Hospital show that out of 9,000 cases, in 57, or 1 in every 158, death was due to ear disease; and Gruber found, under 40,000 post-mortem reports, that death in 232, or 1 in every 172, was due to the same cause. Alarming as these figures may seem, Gruber thinks they do not show the actual state of affairs, as many cases never come to a post-mortem, and death is accounted for in other ways, when it is really due to a chronic unsuspected middle-ear suppuration.

It is almost a daily occurrence to find patients of this class who have been told that there was no cure for their condition, and even if the discharge would stop, it would soon return. The results of the various clinicians have disproved this. Stoeke reports one hundred cases on which he performed the radical operation for chronic suppurative middle-ear disease, with a permanent cure in ninety-four. Three died, but independently of the operation. Two were lost sight of, and one was not cured. The hearing was improved in thirty-one, and in six it was worse after the operation, but in only three to any degree. In forty-nine there was no change, and in fourteen no record was made. Other clinicians report equally good results; and Politzer, in referring to the radical mastoid operation, says that the surgical treatment of chronic suppurative middle-ear disease, in its present state of development, is one of the most valuable achievements of modern otology.

THE FUTURE WATER SUPPLY OF ST. LOUIS.

The commission of hydraulic engineers employed by the city of St. Louis last spring to investigate the available means of securing pure water for this municipality, have lately handed in their report and conclusions. It seems that the proposition of furnishing a better water supply to the citizens of the city than they now receive narrows itself down to one of two things: either the use of water pumped from the Mississippi river and then filtered, or else the installation of a gravity system at the Meramec River, situated some ninety miles from this city. The report of the engineers shows that two members of the commission, Messrs. Wizener and Williams, favor the use of the Meramec River water, while the third member, Mr. Hazen, favors filtration of the present sup-

ply. The reports are extensive and embody careful observations as to the possibilities in both directions. Chemical and bacteriologic records of the condition of the water from the Meramec River are given, these examinations having been made by a number of experts working independently and at different times. An estimate of the approximate cost of both systems is given, with figures showing exactly how the money can be raised, etc.

The majority report favored the use of the Meramec River water. The minority report favored filtration with alum as a coagulant. The majority report showed, in the first place, that the Meramec River water is pure, as proven by competent bacteriologic and chemical findings. This is indisputable. It means much so far as strengthening the stand taken by the engineers, representing as it does the consensus of opinion of engineers—in the face of two propositions, one implying the use of a filtered polluted water, and the other implying the use of an unpolluted, unfiltered water, it is by far preferable to use the unpolluted water, even though the cost be greater.

The Meramec River dains from a mountainous, unpopulated country, so that there can be no difficulty in policing the water-shed at all future times. The very character of the country precludes any possibility of any wholesale pollution of the water-shed. In the second place, the supply of water is ample and fully adequate for present and future needs of the city. Accurate figures demonstrate this fact conclusively. In the third place, even though at first sight the cost of installation of this plant seems much higher than the cost of erecting a filter plant, it is shown by careful mathematical data that the cost of the plant fifty years hence would be much less than the cost of maintenance of a filter plant. The use of the Meramec River water means simply the erection of dams in the valley adjacent to the river, together with large storage reservoirs near the city. The elevation of the source will furnish the force necessary to drive the water into the city with more energy than is now accomplished by means of our great pumping engines at the Chain of Rocks. Briefly, then, the Meramec River proposition agrees to furnish a pure water, of adequate quantity, by force of gravity, at a comparatively cheaper cost than filtration, with perfect assurance of future purity and adequacy of supply.

The minority report, compiled by Mr. Hazen, who is an acknowledged filter expert, and therefore rather inclined to look with approval on any proposition which implies water filtration, favors filtration of the present source of supply—*i. e.*, the Mississippi river water. He claims that the Meramec River water is more costly than filtration. He attempts to show that the supply of water from the Meramec River might some day prove inadequate. He does not deny the purity of the Meramec River water. Hence, he opposes himself to the consensus of opinion referred to above. He declares that filtration of the Mississippi river water can only be accomplished by utilizing the coagulant alum as a preliminary measure. He admits that there are no experimental or statistical data of any kind that will show that it is a fact that the Mississippi river water as received in the in-take tower of the St. Louis water-works can be successfully filtered on a large scale, even with alum coagulation. In other words, Mr. Hazen reports against the Meramec River proposition, which represents the ideal of modern engineering and scientific thought on a perfect municipal water supply, and endorses a filtration proposition, the practicability and feasibility of which has never been demonstrated! The conclusions, then, of this one

member of the commission have not the same firm basis of fact and reason to support them that we see in the conclusions of the majority members of the commission.

Another point in connection with the filtration plan that must needs be interesting to medical men is the contemplated use of alum as a coagulant in the filtering process recommended by Mr. Hazen. Medical men are familiar with the statutes prohibiting the use of alum in food-stuffs, baking powders, etc. Now, the method of filtration in which alum is employed means that a large percentage of alum will be found at one time or another in the affluent. It is stated by Fuller, who made an elaborate report on experimental filtration of the Ohio river water, that "in practice it may be stated that it would be almost impossible for one uniformly to apply this chemical in such quantities as would accomplish the clarification, and at the same time keep the amount of chemical so small that practically none would remain in the water after subsidence for about eight hours." (Fuller's Report, page 281.) This statement is made with Ohio river water as the material treated. It would then be still more difficult to control the amount of alum used in dealing with the Mississippi river water, which presents much more formidable difficulties to treatment with alum by reason of the relatively large and varying quantities of suspended and dissolved solids present. Hazen recommends "five-minute" interval examinations of the water to control the percentage of alum used: when we take into consideration the many difficulties of carrying out such a fantastical procedure as five-minute examinations of a large water supply, with regulation of the amount of alum applied to the water, etc., the status of things passes from the practical to the most absurdly theoretical. Above all things, let us remember that alum is a harmful agent when ingested. The alum coagulation of water means the constant presence of greater or less amounts of alum in the effluent, with all the dangerous consequences thereto.

As medical men we are interested in procuring a pure water for St. Louis, free from disease-producing bacteria. We realize the awful consequences of a pollution of the water supply with the bacillus typhosus. As medical men we should strongly condemn the contemplated action of using a deleterious agent like alum in our water supply. The proposition offered by the Meramec River owners certainly deserves the endorsement of the medical men in our community, representing as it does perfect water, unpolluted and unadulterated. On the other hand, the use of alum in our water supply should be unmercifully condemned as being unjustifiable, unnecessary and highly dangerous.

MEDICAL AND SURGICAL PROGRESS.

INTERNAL MEDICINE.

IN CHARGE OF

JESSE S. MYER, M. D.

Public Health Reports.—(June 28, 1901—December 27, 1901).—Small-pox in the United States as reported to the surgeon-general, United States Marine Hospital Service, from December 28, 1900, to December 27, 1901; the grand total of cases reported was 48,206, with 1,127 deaths. During the same period, 1900, the grand total of cases reported was 20,362, with 819 deaths.

The Differential Diagnosis of Small-Pox.—MAC'COMBIE (*The Lancet*, December 28, 1901).—The diagnosis of small-pox in the pre-eruptive stage is frequently rendered difficult because of its prodromal rashes simulating scarlet fever and measles. The absence of the eruption for the most part on extensor surfaces, the face, neck and temples, faucial inflammation and submaxillary gland enlargement, and the presence of a severe backache, should warn one against a diagnosis of scarlet fever.

The rash resembling measles is only slightly raised and disappears on stretching the skin. It reaches its height within twenty-four hours. Other conditions which may simulate small-pox in the pre-eruptive stage are erythema multiforme, typhus fever, influenza, ptomaine rashes, Rötheln, copaiba rashes, lichen and lumbago.

The diagnosis of small-pox in the papular and vesicular stages will be somewhat influenced by vaccination. In unvaccinated patients the eruption is in its earliest stages macular; while in vaccinated subjects it is macular or papular, and within a few hours becomes distinctly shotty.

The disease most frequently taken for small-pox is chicken-pox. The chief differential points lie in the distribution of the eruption, the shape of the vesicles, their rate of growth and the unilocular character of the vesicles of chicken-pox compared with the multilocular nature of those of small-pox. Other affections here considered in detail are syphilis, herpes, eczema, impetigo, pemphigus, urticaria papulosa, acne, rheumatic sudamina, glanders, and pyemic skin eruptions.

In the diagnosis of small-pox the following rules should be observed:

1. The initial symptoms are most constant both in vaccinated and unvaccinated subjects.
2. It should never be taken for granted that the eruption on the trunk is just like that on the face and extremities, but in every case a careful examination should be made.
3. All cases of vesicular eruption occurring in the same house with a small-pox patient are not necessarily small-pox.
4. In a large number of vaccinated subjects the disease is so mild that the patient feels perfectly well as soon as the eruption appears.
5. Care should be taken in ascribing small spots on the face to digestive disturbance without first observing the patient carefully.

Mistakes in diagnosis are most frequently made in times when the disease is not prevalent.

Variola or Small-Pox.—DUXBURY (*Boston Medical and Surgical Journal*, February 13, 1902) writes concerning the recent epidemic of small-pox in Manville,

Rhode Island. After handling over fifty cases, he has no hesitancy in stating that they were genuine cases of small-pox. A majority of them were of a mild form, though there were a few in which the eruption covered nearly every bit of the external surface of the body. The history and symptoms of these cases correspond with those stated by our leading authorities as typical of the disease. No one symptom is pathognomonic, but it is the regular succession of the symptoms that is truly diagnostic of the disease. The headache and pain in the back were so severe that the patients themselves frequently offered the diagnosis. Those who doubted the true nature of the affection were those who had not only not seen one of these cases, but had not even seen during their professional career a case of small-pox.

The average age in fifty-one cases was fourteen and one-half years. The lesions in every case progressed to their final destruction in regular order. The shot-like feeling, the vesicular element, the umbilication, the corrugated appearance, were all present one after the other, and finally cicatrices were left to mark the site of the disease. The epidemic lasted throughout June, July and August.

Notes on One Hundred and Fifty Cases of Small-Pox in Private Practice.—SOILAND (*Journ. Amer. Med. Assn.*, 1901, vol. xxxvii., No. 14).—In view of the fact that many doubt that the prevailing epidemic is small-pox, and prefer to call it pseudo small-pox, Cuban itch, etc., the author reports his experience with one hundred and fifty of these cases in central Louisiana. He does not hesitate to call them genuine small-pox, and denies that they could have been confounded with any other affection. The course of these cases followed that laid down in all text-books, with the exception that the secondary fever was low. The onset was usually sudden, with high temperature and pain in the back. The last symptom proved to be quite diagnostic, and would not yield to medication before the eruption appeared. In thirty-four cases the eruption was confluent. In these cases large casts were thrown off from the four extremities, a condition which never exists in varicella. There were lesions on the palmar surfaces of the hands and the plantar surfaces of the feet. Delirium was present in all severe cases. The course ranged from three to eight weeks. It was not possible from the prodromal symptoms to state whether a discrete or a confluent case would follow, as in a number of instances the most severe prodromes would be followed by a mild eruption, and *vice versa*. One case proved fatal, and that of the hemorrhagic type. The hemorrhage took place in the papules before they were mature, the skin resembling that of erysipelas.

Not one of these cases had been vaccinated, and not one person who had been successfully vaccinated contracted the disease. Three hundred and fifty persons in all were vaccinated, and not one of these contracted the disease, though daily exposed. The author lays special stress on the following observation: When a member of a family was stricken, the other members were at once vaccinated. Perhaps two or three would respond favorably, while others would not. These latter were vaccinated as often as practicable, but would get no reaction. After several weeks, when the other members of the family had recovered, those who had failed to respond to vaccination would invariably contract small-pox. The author is in doubt as to whether or not vaccination retarded the outbreak in these cases.

An Unusual Type of Small-Pox with Fatal Termination.—LEROY, Nashville (*American Medicine*, 1901, vol. ii., No. 10), reports a case in an epidemic of small-pox occurring across the State line from Guthrie, Kentucky, in which the mortality was sixty per cent. Many of the cases presented the following characteristics: The patient was exposed to the disease fourteen days previously and had the characteristic premonitory symptoms. On the third day of illness the eruption appeared. On the seventh day it

was fully pustular and quite diffuse. The symptoms were mild and recovery was predicted. On the eighth day all of the pus became rapidly absorbed, leaving the skin loose where the pustules had been. It presented no appearance of rapid desiccation, nor was any darkening or central retraction of the pustules present, as is the case when ordinary desiccation occurs rapidly. Great prostration occurred, with symptoms of profound septic poisoning. Swelling and disfigurement disappeared. Death occurred upon the ninth day. There was no pus in any of the pustules at the time of death.

Remarks on Vaccination in Relation to Skin Diseases and Eruptions Following Vaccination.—VAN HARLINGEN (*Phil. Med. Journal* January 25, 1902).—Since papers which have appeared on this subject are scattered in many special journals, the author has condensed in this paper a short description of the skin affections occasionally met with in connection with the inoculation of vaccine virus.

According to the classification of Morris, these are divided into two groups: eruptions due to pure vaccine inoculation, and those due to mixed inoculation.

Secondary inoculation sometimes occurs between the formation of the primary vesicles and the eighth day; in such cases the secondary vesicles and the primary ones mature at the same time. Cases of this kind are apt to occur in establishments for preparing vaccine lymph, the virus being conveyed from the hands to other parts of the body. *Urticaria*, *vesicles* and *bullæ* frequently occur in the neighborhood of the vaccination, the immediate result of the irritation caused by the vaccine virus. These usually develop within the first three days. *Roseola*, *erythema*, *vaccine lichen*, *purpura*, etc., sometimes follow the development of the vaccination vesicles, and are due to the absorption of the virus. They are without exception angio-neurotic in character. *Vaccinia herpetica* is analogous to a general outbreak of an infectious disease following a period of incubation. Tyson describes such a case, in which the lesions resembled those of small-pox. *Eczema*, *impetigo* and *psoriasis* sometimes occur as sequelæ of vaccination. Unless they occur with or immediately after vaccination, they should not be attributed to the influence of the latter. The inoculation of *syphilis*, *leprosy* and *tuberculosis* is very rare. Excepting in the form of lupus, no authentic case of tuberculosis has been reported. A few cases of syphilis and leprosy were reported when arm-to-arm or human-crust vaccinations were made.

The influence of vaccination upon the course of previously existing affections of the skin has never been carefully investigated. In a few cases the author has noted such an influence. In the great majority of cases vaccination did not appear to influence the course of the more common diseases of the skin. In the main the shield is useless and detrimental, serving to retain moisture, keeping in the secretions, and thus acting as a cultivation house for pathogenic germs.

Small-Pox and Vaccination with Special Reference to Glycerinated Lymph.—DOCK (*Journ. of Amer. Med. Assn.*, December 21, 1901), in summing up his observations with reference to glycerinated lymph, maintains that if it is properly raised and prepared, it offers less danger of septic infection than any other kind of vaccine virus. Notwithstanding the disadvantage of slow drying, it is to be preferred to dry points as made at present. Any variation from the characteristic features of the vaccine vesicle must be looked upon as evidence of imperfect protection.

Virus that produces imperfect lesions should not be used, since it causes an unfounded feeling of security without always producing immunity. Every physician should have a knowledge of the natural history of normal vaccinia. Histories of all cases of small-pox, varioloid and chicken-pox should be ascertained and recorded carefully, with special reference to vaccination. Makers of vaccine should give clear and explicit statements as to the quality of their prod-

net, aside from its freedom from pyogenic germs. Careful tests on monkeys should be made in order to maintain a proper standard. A government station for making and testing virus should be established. Public vaccinators should have careful training for their work.

A Century of Vaccination.—CRANDALL, New York (*American Medicine*, December 7, 1901), in a careful review of vaccination and its results since the days of Jenner, concludes that the experience of more than a century has confirmed and strengthened his teachings, except upon the single point of the duration of immunity. He summarizes as follows: The first lesson cannot be better stated than in the words of the Berlin Board of Health: "Vaccination in infancy renewed at the end of childhood renders an individual practically as safe from death from small-pox as if that disease had been survived in childhood, and almost as safe from attack."

The duration of immunity is variable. In many cases the procedure above is sufficient for life protection, while in a limited number immunity is lost in five or six years. In an epidemic, vaccination of all who have not been vaccinated within five or six years gives all the benefit of a reasonable doubt. Those who were vaccinated in infancy and childhood should be vaccinated at least once in adult life. The immunity produced depends upon the thoroughness of the process, and this is shown in a measure by the character and number of the scars. Vaccination in infancy is not sufficient to prevent small-pox among the adult population.

Compulsory vaccination is a measure warranted by more than a century of experience; optional vaccination has not proved sufficient. The mild compulsion in this country by requiring vaccination or evidence of its recent performance upon admission to the public schools, deserves the hearty support of parents and physicians alike.

Vaccination and Small-Pox.—DURGIN, Boston (*Boston Medical and Surgical Journal*, January 30, 1902).—To secure absolute immunity from small-pox a child should not only be vaccinated when very young, but should be subjected to repeated vaccinations until it no longer takes effect, thus exhausting all susceptibility to the disease. This should be repeated at ten or twelve years of age, and later in life on exposure. Some serious cases of small-pox occur among those who have been successfully vaccinated in infancy. In the republic of Mexico humanized lymph has been used exclusively for ninety-seven years. The preparation has been carefully supervised by the government. They never revaccinate, neither do they have small-pox among the vaccinated.

The occurrence of small-pox among the vaccinated in this country may depend upon our carelessness or a possible deterioration in the bovine lymph which has been in almost exclusive use for thirty years. There should be a more uniform and careful technique. Asepsis is absolutely necessary. Scraping off the outer skin and bringing a redness is sufficient. The shield is, on the whole, a nuisance. The physician should always see the patient within a week and revaccinate him if there is no typical vesicle. Its appearance may be delayed for a period of twelve days when glycerinated lymph is used. At this time there are one hundred and seventy-five cases in the Boston hospital for small-pox.

In 1872 there were thirty per cent. of deaths; in the present epidemic thirteen per cent. Under the statute law of Massachusetts, every child must be vaccinated before it attains the age of two years. An amendment to this law allows any child to attend school who can bring a certificate from a physician stating that it is an unfit subject for vaccination. The anti-vaccinationists are utilizing this amendment on the grounds that no person is a fit subject for vaccination.

The Vexed Question of Vaccination—What is the Best Method of Securing Immunity from Small-Pox.—GOOD (*American Medicine*, 1901, Vol. ii, No. 20) points to the favorable results recently obtained in both this and oriental countries through vaccination, and laments the fact that in spite of such convincing arguments there are still those who believe it inefficient. Fully convinced of its efficacy, the author presents a number of points concerning vaccination that require solution. Chief among these is the question as to the frequency with which it should be repeated, the length of the acquired period of immunity, the modifying effects of extraneous conditions, etc. He maintains that those who have claimed that the glycerinated lymph possesses no superiority over the dry, lack proper experience. Their statements are not founded on careful statistics. In view of differences of opinion that exist among physicians, and because of the want of knowledge on certain points and the lack of confidence that has been engendered in the public mind, he suggests that Congress should appoint a commission whose duty it would be to consider the following points:

1. Does one attack of small-pox give absolute immunity? If not, for what time is immunity accorded?
2. How soon after an attack of small-pox can vaccine vesicles be produced by careful vaccination with a good virus?
3. Should a person be considered not immune if, having had an efficient vaccination some few years before, a revaccination produces vaccinal possibilities?
4. The importance of carrying out control tests with one species of virus from four to six weeks after the original vaccine had apparently taken.
5. What kind of lymph is it most safe to rely upon, and what is the most approved technic.

SURGERY.

IN CHARGE OF

WILLARD BARTLETT, M. D.

Ligation of the Abdominal Aorta for Aneurism.—MORRIS (*Annals of Surgery*, February, 1902).—This is the fourteenth operation of the kind recorded, all the patients having died; one of them having lived forty-eight days, however, a warrant that the operation may in the future be performed successfully. Morris' patient, a woman of twenty-four years, had suffered from symptoms of the disease but four months, but the tumor was large and pulsated violently. A rubber catheter was tied around the aorta, midway between the tumor and the bifurcation, then a clamp applied instead of a knot, this being allowed to project out of the abdomen. It was the intention to leave this in place only until clots might have formed in the sack. Pulse and respiration increased greatly after the ligation, and it was nine hours before the normal was restored; the legs remained cold for several hours while great pain in them existed. In twenty-six hours after operation the aneurism had ceased to pulsate and nearly disappeared, hence the catheter was withdrawn one hour later. The pulsation in the femorals returned at once. Sensation in the legs returned promptly, as did sphincteric control, and a successful outcome was expected, but infection caused the death of the patient, fifty-three hours after the operation. At the autopsy it was found that gangrene of the intestines had occurred at the point where the clamp had touched them, hence the infection.

Abdominal Injuries.—LEXER (*Berliner Klinische Wochenschrift*, December 22, 1901).—The first case presented is one of a man forty years of age, who, six

years ago, was shot in the abdomen, there being six perforations of the small intestine. An immediate laparotomy, suture of the openings, dry cleansing of the peritoneum, and complete closure of the abdominal wall resulted in perfect recovery; at no time since has he experienced symptoms which might have been caused by the old injury.

The next patient was injured by a train; a large hole was torn in the right side of the abdomen, and a part of the omentum crushed off; no intestinal trauma was sustained, and upon the wound being tamponed with gauze he made a perfect recovery. But after his discharge there ensued a hernia in the scar; this, however, does not keep him from hard work.

Every case of knife or gunshot wound of the abdomen is to be followed into the depths and a complete laparotomy done if the peritoneal cavity is found to have been opened. The only exception to this rule is found in cases where the chest has first been penetrated; that is, where abdominal symptoms cannot be recognized or are secondary to others emanating from the earlier course of the missile. Still the abdominal injury may be by far the more dangerous of the two, hence the importance of its diagnosis. A life may be saved by opening the abdomen in such a case, while the operation brings scarcely any fresh danger with it though done in vain, as Lexer proves by another case which he relates.

Subcutaneous injuries of the abdomen are much more uncertain in their indications; what many take for shock may be hemorrhage or peritonitis, and while the doctor waits for the shock to pass, the patient is rapidly getting far beyond the hope of rescue. Lexer relates the history of two interesting cases which prove that the vomiting of bile as well as the symptoms of intestinal paresis are to be seriously taken as indications of intestinal rupture. One of these was operated upon several days after an injury and died, while the other was better treated as a result of experience, and consequently rescued by an operation which was performed some fifteen hours after he had been hurt. Another case was that of a man who had been kicked in the belly by a horse; there were the most severe abdominal symptoms, though none which were absolutely indicative of one certain trauma, so laparotomy was performed at once and all symptoms disappeared immediately, the patient recovering completely.

Internal hemorrhage is easier to diagnose, but at the same time more dangerous; especially to be feared in this connection is the injury of the liver. The most prompt help can often be of no avail.

December 9, 1901.—Two cases are related which prove the truth of that which has just gone before: one was that of a school-boy who had been run over by a wagon; the other that of a sailor who had been caught between a tightly stretched hawser and the wheel-box.

There are other dangers to abdominal cases which urge an early operation: 1. A crushed intestine may later become necrotic, so lead to perforation and peritonitis. 2. Abscesses may form in the neighborhood of such injuries. 3. Chronic ileus may supervene upon the adhesions and constrictions that follow spontaneous healing of injured gut. 4. So-called blood-cyst may by its very size become an object of danger to its possessor. In conclusion, it must be said that a relatively small number of these cases recover unless operation is performed.

A Death from Chloroform.—POIRIER (*Bulletins et Memoires de la Societe de Chirurgie de Paris*, No. 2, Tome xxvii.).—This case, the first ever experienced by this distinguished surgeon, presented a striking peculiarity, in as much as death was not due to cardiac or respiratory disturbance; but the patient suddenly expired while asleep, twenty minutes after the operation had commenced. The patient was a woman of fifty-eight years, who had been suffering from gastric trouble until she had become extremely weak. One instant the muscles were contracted, but the next the respiration as well as the heart-beat had ceased. All

artificial means were resorted to to restore the patient, but without avail. Between 30 and 35 gm. of the drug had been used with the utmost care, and the rest of the bottle, when examined by the city chemist of Paris, was pronounced "good." The author excludes the ordinary causes of death during chloroform narcosis, and insists that the extraordinarily weakened condition of his patient was the chief factor in bringing about the accident.

Emergency Herniotomy and Enterectomy.—HEWITT (*Journal of the Association of Military Surgeons*, vol. 10, No. 3).—Five days after the strangulation of a femoral hernia, and with no assistance except such as was rendered by laymen, the author performed the above named operation at a signal station in Alaska, the patient being a man of forty-five. The constriction was incised and the gut (four inches of small intestine) stitched into the sack; but four days later one inch of it had to be resected and an artificial anus established. Several months later a secondary operation was done, the abdomen being opened and the herniated gut divided, an end-to-end anastomosis made and the excluded portion left to shrink in the inguinal canal. The patient made a perfect recovery, passing his Murphy button on the eighteenth day.

Round Duodenal Ulcer.—LASPEYRES (*Centralblatt fuer die Grenzgebiete der Medizin und Chirurgie*, Bd. v., No. 1).—The statistics on the perforation of such a lesion are decidedly interesting to the surgeon; this accident has happened, according to different authors, in forty-two per cent. to sixty-nine per cent. of all cases. The portion of the gut most frequently affected is the anterior wall of the upper horizontal segment: hence perforation into the free peritoneal cavity is the rule. Of course any of the neighboring organs may be invaded after adhesion to the same has formed, or localized abscesses may be formed; where these latter occur between the layers of the mesentery, they may burrow to the skin of the back.

Traumatic Rupture of the Spleen with Slow Hemorrhage.—COVILLE (*Gazette des Hopitaux*, January 28, 1902).—The course of this case was so different from that of those usually reported, that the author considers it worthy of publication. On the day after a hard fall the patient, a woman of sixty-five, noticed a severe pain in the left side; on the next day she noticed in addition a gradually increasing swelling. This continued to grow in size until she was seen, when fluctuation was felt in it, but it was at no time highly sensitive. About three weeks after the accident the woman, who was still able to be up and about, was operated upon, and more than a liter of partly clotted blood evacuated from the peritoneal cavity. A rent in the spleen from which blood was still flowing caused the surgeon to remove that organ as the only means of saving the patient from a repetition of her symptoms.

Surgical Aspect of Intra-Cranial Tumors.—DUNN (*American Practitioner and News*, No. 1, 1902).—An interesting case is reported; a boy of twelve who had sustained a hard fall on the back of the head some three years previously is affected with headache, vomiting, dilated pupils, impaired vision, etc.; he lacks sphincteric control, has a staggering gait, walks to the left with the head thrown back; hence, the author concludes that he has a tumor in the middle cerebellar lobe of the right side. Upon the operating-table there was found a cyst, which was drained, whereupon the symptoms disappeared until reaccumulation occurred. A second operation was performed and a better drainage established by the use of rubber tube, since which time the little patient has remained well.

Artificial Pneumothorax as Preparatory Operation in the Extirpation of Tumors of the Chest-Wall or of the Lung.—DOLLINGER (*Centralblatt fuer Chirurgie*, January

18, 1902).—Opening of the pleura is by no means a dangerous procedure when it does not occur too suddenly. Convinced of this fact the author made an artificial pneumothorax a few days before he resected parts of three ribs for sarcoma. During the operation there was less disturbance in the narcosis than is observed when the pleura is opened in the course of such a procedure. It may then in general be called safer, according to Dollinger, to open the pleura some time (one day) before the resection of a part of the chest-wall. In two cases there were no post-operative disturbances, and the lung was well filled out two weeks later.

The New Operative Treatment of Extrophy of the Bladder by the Method of Prof. Soubotine, of St. Petersburg.—KATZ (*Le Progres Medical*, February 1, 1902).—This most ingenious method deserves the serious consideration of every surgeon who may be called upon to combat the terrible malady under discussion. The author begins his article with a description of the plight in which these patients find themselves, in consequence of the exposure of the vesical mucous membrane. Next are considered the various procedures which have been undertaken for the relief of so undesirable a condition. The idea of Soubotine is to substitute a portion of the anal sphincter for the absent vesical sphincter, and at the same time to fashion out of a part of the rectum a container for urine, the same to be absolutely separate from that which is left for the accumulation of fecal matter. After resection of the coccyx an anastomosis between bladder and rectum is made, and then from the anterior wall of the rectum is cut a flap, surrounding this new opening; the flap is brought together behind and the resulting bag acts as a new bladder. The remainder of the rectal ampula is sutured, and the canal re-established, though narrower than before. At a second operation the anterior wall of the bladder is to be closed completely. Two patients thus treated can go four or five hours without passing urine, have perfect control of the new sphincter, and are in every way satisfied with their new condition. Certainly no such improvement has ever been attained by the use of any of the older methods formerly in vogue.

Some Indications for Gastro-Enterostomy.—MAYO (*International Journal of Surgery*, February, 1902).—The author bases his conclusions on sixty-four such operations, a number which must be regarded as sufficient to warrant definite conclusions. The operation is indicated in malignant disease only if obstruction be present; four of sixteen cases were lost by the author. For open ulcer this operation is of the greatest value, especially if the lesion be near the pylorus; the author lost but one of thirteen such cases. In benign obstruction and dilatation, gastro-enterostomy is of chief value; such a stomach is drained from its lowest point, and, as a result, the cure is immediate and lasting; but one case out of thirty-five of this class was lost by this operator.

THERAPEUTICS.

IN CHARGE OF

ALBERT E. TAUSSIG, M. D.

Clinical Observations with Agurin (a New Theobromin Preparation).—L. MICHAELIS (*Deutsche Arztzeitung*, 1901, No. 24).—Theobromin has for some time been known as our most efficient diuretic. Owing, however, to its irritating character when taken into the stomach, attempts have from time to time been made to combine it with other salts so as to produce a substance that, while retaining the

diuretic power of theobromin, might lack its quality of irritating the gastric mucous membrane. Until recently the most successful of these compounds was the double salicylate of theobromin and sodium, known as diuretin. Even diuretin is, however, somewhat irritating, and often, especially in cardiac dropsies, where its beneficial action would be most striking, we find the stomach unable to retain it. This drawback is entirely obviated in a new preparation, agurin, consisting of five parts of theobromin acetate and two of sodium acetate. It is thus considerably richer in theobromin than is diuretin. Moreover, the sodium acetate is not only unirritating in contrast to the sodium salicylate of theobromin, but has itself a slight diuretic power. These advantages over diuretin, that we would theoretically expect agurin to possess, have been carefully tested by Dr. L. Michaelis in the Staedtisches Krankenhaus of Berlin. After having used it in a large number of cases, he failed to find a single instance of unpleasant effects, either upon stomach or heart. One patient with chronic parenchymatous nephritis, who, during a four months' stay at the hospital, vomited almost daily, did not vomit once during the four days in which he took fifty grains of agurin daily. Its diuretic power he found at least equal to that of diuretin, and, like the latter, he found it most efficient in dropsies due to valvular disease of the heart. Its activity is much increased when administered in combination with digitalis. Since, unlike the latter, it acts not upon the heart, but upon renal apparatus, it is most efficient when the kidneys are intact. A mild nephritis, however, especially of the chronic interstitial type, does not entirely inhibit its activity.

Agurin is a white powder of a slightly bitter taste, and easily soluble in water. The average dose for adults is fifteen grains three times daily. It is better to give it dry than in solution, since the latter, owing to the gradual setting free of theobromin, is not stable. It seems destined to form a valuable addition to our therapeutic armamentarium.

The Hydriatic Treatment of Pneumonia.—L. BRIEGER (*Centralblatt f. d. Ges. Therapie*, No. 1, 1902; *Wien. Klin. Wochenschr.*, No. 23, 1901).—In children, the author uses prolonged (up to ten minutes) hot baths of a temperature of 99° to 101°, followed by the dry pack. Even in feeble children he has found this procedure quite safe; not so in the aged or obese. In the latter he uses the thoracic pack. A towel wrung out in water at room temperature is wrapped around the chest and covered with a dry cloth. If the temperature is high, the pack is changed frequently until it falls to 100°. Then the pack remains *in situ* till profuse perspiration is produced. It is well to administer warm drinks during this procedure; heavy drinkers must receive alcohol. The sweating is continued as long as the pulse permits, then the patient is washed for a short time with cold water. This method has been especially useful in grippe-pneumonias. In a number of cases of grippe-pneumonia in diabetics, Brieger has, he feels sure, prevented imminent death. In a young, corpulent drunkard the infiltration disappeared under this treatment, although a marked cyanosis and an intermittent, irregular pulse seemed to render the prognosis unfavorable. Brieger believes that he is following the method of nature, which, in the profuse sweating during the crisis and in the subsequent rapid recovery, shows us how we may best aid our patient. The above described sweating process probably accomplishes its beneficial results by relieving the congestion of the overfilled lungs.

PATHOLOGY AND BACTERIOLOGY.

IN CHARGE OF

R. B. H. GRADWOHL, M. D.

Soluble Ferment in Cultures of Tubercle Bacillus.—(*Compt. Rendu. de la Soc. de Biol.*, T. lii., No. 11.)—It has been demonstrated that in a medium of monobutyryl a six-months'-old culture of the bacillus tuberculosis produces an acid reaction within twenty minutes after inoculation. This is due to the presence of the ferment first described by Hanriot. It has also been found in cultures of the *Aspergillus niger* by the same observer.

The Demonstration of Tubercle Bacilli in Butter and Margarine.—MARKL (*Wiener K. Woch.*, No. 10).—Forty-five guinea-pigs were inoculated intraperitoneally with forty-three specimens of butter and two specimens of margarine bought in the open market in Vienna. Nine of the animals showing no effects after eight weeks, were re-inoculated. Of these forty-five animals, ten died after a very short time, of peritonitis. Seventeen died after some time, with severe diarrhea. True tuberculosis was not observed in any of these cases. In one case a condition of pseudo-tuberculosis was manifest, due to some acid-fast bacterium.

Tuberculous Milk.—NONEWITSCH (*Centralb. f. Bak. Infect. u. Parasitk.*, Bd. xix., No. 24).—Search was made for the tubercle bacillus in the milk from a number of women and cows. The following results were obtained:

(a) Woman's milk:

1. A. M., aged twenty-six years, three days post-partum. Cough. Nothing abnormal in the chest. Weak constitution. Tubercle bacilli found in the milk in great quantities.

2. A. G., aged thirty-six years, eight days post-partum. Cough. Nothing pronounced in physical examination of chest. Well nourished. No bacilli in the milk.

3. M., twenty-seven years of age, five days post-partum. Dry cough with rales all over chest except in the apices. Milk contained many tubercle bacilli.

4. D., aged twenty-four years, six days post-partum. Slight dullness in the right lung. Many tubercle bacilli found in the milk.

5. and 6. These were two private cases which showed no tubercle bacilli.

Thus, it can be seen that tubercle bacilli were found in three out of the six observed, a percentage of fifty per cent.

(b) Cow's milk. Only cows from the best dairies were studied:

1. Fifteen head of cattle, eleven cows, two steers and two calves. In five of the cows the tuberculin reaction was positive. The milk from the eleven cows was carefully examined, but tubercle bacilli were found only in the milk from the five cows which showed the tuberculin reaction.

2. Out of nine cows of different kinds, seven showed the tuberculin reaction, and of these seven only six showed tubercle bacilli in the milk.

3. Thirty-two cows and four steers were examined. The tuberculin reaction was present in three of these cases. Two cows showed tubercle bacilli in their milk.

4. Five cows and one goat were examined. The goat did not show the tuberculin reaction, but tubercle bacilli were found in its milk. The cows were not tuberculous in this series.

5. Out of twenty-two cows examined indiscriminately throughout the city of Wilna, tubercle bacilli were demonstrated in the milk of twelve of them.

Tubercle bacilli, then, were found in fifteen cases out of sixty-three examined, a percentage of twenty-five. It is probable that tuberculosis is thus manifested in even higher amounts, because in this investigation only cows from the best appointed stables, etc., were examined, whereas the meaner stock would surely show a higher percentage.

Iodophilia.—EDWIN A. LOCKE and RICHARD C. CABOT (*The Journal of Medical Research*, vol. vii., No. 1).—Iodophilia is the reaction which certain of the white cells of the blood show when a dried blood film is brought into contact with a drop of the following solution: Iodine, one gram; iodide of potassium, three grams; water, 100 c.c.; gum arabic, fifty grams. These writers observed a number of cases in the Massachusetts General Hospital. In certain pathological conditions, such as septicemia or uremia, the uniform yellow coloration of a blood film stained with this solution is broken by the appearance in the protoplasm of the polymorphonuclear neutrophils of reddish-brown granules, or a diffuse brownish discoloration, and by the presence of small and large masses outside the corpuscles similarly colored. This reaction may be intracellular and extracellular. These writers came to the conclusion that the brown masses outside of the corpuscles are present in small numbers in all blood, both normal and abnormal, but frequently in such minute quantities as only to be found after long searching. Only an increase of these masses is to be considered pathological. They have been found uniformly and markedly increased in diabetes mellitus, variably in chronic or very severe acute suppurative diseases, and rarely in a few other conditions. In general it can be said that the increase of extracellular iodophilia is of little significance. The intracellular granules, however, have never been observed in the blood of normal individuals, and their presence is always pathological. Like leucocytosis, fever and the diazo reaction, iodophilia signifies not a special disease or condition, such as abscess, but a general toxemia such as might be produced by an abscess, gangrene, uremia or malaria. Iodophilia is not identical, neither does it coincide in its indications with any of the ordinary physical signs, as leucocytosis, fever, etc. It appears to be certain evidence that the patient is sick. It has not been observed except in severe cases, and hence these observers think that it is in this respect more reliable than either leucocytosis or fever. A "positive reaction" occurs in the following conditions: infection with pyogenic organisms, whether local or general; toxemia of bacterial origin, as in diphtheria and typhoid; non-bacterial toxemia, i. e., uremia; disturbances of respiration; grave anemia, both primary and secondary.

The sign was never observed in pleurisy, rheumatism, extrauterine pregnancy, alcoholism, abscesses with free drainage, lead poisoning, early malignant disease, nervous conditions, tuberculosis if uncomplicated with secondary infection, and various other diseases.

The technique of application of the test is as follows: A cover glass film is prepared in any of the usual ways and allowed to dry in the air. Without fixation it is pressed down upon a drop of the iodine solution on a slide, and examined with an oil immersion lens. In making the preparation it is well to use slightly more of the mixture than is necessary to cover the film, in order to bring the fluid in contact with all the cells, and then squeeze out all the excess by gentle pressure on the cover glass, lest the dense color of the fluid obscure the field.

GYNECOLOGY AND OBSTETRICS.

IN CHARGE OF

HUGO EHRENFEST, M. D.

The Treatment of Habitual Abortion and Prevention of Premature Birth of Dead Children.—RICHARD LOMER (*Zeitschr. fuer Geb. und Gyn.*, vol. xlv., No. 2).—Etiological factors of the greatest importance in this category of cases are syphilis, disturbances in the kidneys, and pathological processes in the endometrium. All these conditions are characterized by the fact that they cause certain lesions of the placental tissue due to rupture of blood vessels. Reasoning that all these conditions can be benefited by potassium iodide, he used this drug in all cases of habitual abortion during the whole course of pregnancy, even if there were no signs of syphilis. Since these patients usually show marked signs of anemia, he made it a rule to combine the iodide with an iron preparation. The results obtained with this treatment were, in the author's cases, the histories of which he gives in detail, strikingly good, and encourage an extensive trial of this procedure. In his conclusions he states that possibly the good effect of the iodide in all these cases, syphilitic or non-syphilitic, may be explained by its faculty to prevent the rupture of the placental blood vessels.

Rupture of the Pregnant Uterus in Line of Old Scar.—PEHAM (*Centralbl. fuer Gyn.*, January, 25, 1902).—Based upon several reports in literature, and observations of his own, the author arrives at the conclusion that artificial abortion is justified and indicated in all cases where at the preceding pregnancy a rupture of the uterus occurred and was treated by drainage only. Among other histories he gives a very instructive one, which tends to show the difficulty of estimating the greatness of an injury done at a preceding confinement. The findings in a patient who sustained an extensive laceration of the uterus at her third confinement were, thirty days after this confinement, the following: Uterus well involved, in normal position, its motility somewhat impaired. A scar can be felt on the right of the cervix reaching up to the internal os; immediately above the latter there is a small depression covered with mucous membrane. In the right parametrium a chord is palpable of the thickness of a pencil. This scar was the result of a rather large laceration involving the cervix, the lower uterine segment, and a part of the corpus uteri. The patient was seen again, being three months pregnant. Abortion was produced, and after the uterus was emptied the scar could be felt dangerously thinned.

The Age of First Menstruation on the North American Continent.—GEORGE J. ENGELMAN ("Transactions Am. Gynecol. Society," vol. xxvi., 1901).—Based upon 19,405 observations as regarding the first menstruation in American girls, the author arrives at the following conclusions: American women are, as to the time of functional development, very much more precocious than the women of other continents in the same region of the temperate zone, more precocious than the people from whom they sprung—an average age of fourteen on this continent and of fifteen and five-tenths in Europe. The present inhabitants of this country are more like the true native American—the American Indian. The difference, due to social status, as indicated by the laboring class of the dispensary, and the better situated, from private practice, is inappreciable—fourteen and two-tenths and fourteen and three-tenths; while in European countries this causes a difference of fully two years in the development—frequently more. Mentality,

surroundings, education and nerve stimulation stand out prominently in this country as the factors which determine precocity.

Gas in the Fallopian Tube.—MAUCLAIRE (*Bull. et Mem. de la Soc. Anat. de Paris*; Rev. in *Jl. of Obst. and Gyn. of Brit. Emp.*, January, 1902) notes a condition that some systematic writer may classify some day as "pyosalpinx." On abdominal section the diseased tube was found adherent to uterus, omentum and small intestines. In separating the tube it ruptured and a little pus escaped, then some gas issued from the cavity of the dilated tube. It was free from putrid or fecal odor. The tube was removed and a Mickulicz drain passed into the pelvic cavity. The patient made a perfect recovery.

On Simultaneous Ectopic and Intrauterine Pregnancy.—HANNA CH. VILSIN (*Mittheil. aus der Gyn. Klinik in Helsingfors*; *Ref. Centralbl. fuer Gyn.*, January 11, 1902).—By a careful study of the literature—going back to the eleventh century—the author was able to collect sixty-eight unimpeachable cases of this condition, to which he adds one observation of his own. Some of the most interesting results of his painstaking investigations are the following: In twenty cases both children reached entirely or almost full term. Interruption of the intrauterine pregnancy has a by far slighter effect upon the further development of the extrauterine pregnancy than *vice versa*. Disturbances in the blood circulation in close neighborhood of the uterus, caused by the rupture or abortion of the pregnant tube, are in many cases responsible for the premature interruption of the intrauterine pregnancy. In twenty-five cases the ectopic fetus reached full term. This fact is striking. Engstrom does not consider this a mere accident, but believes that the increased afflux of blood to the pelvis, on account of the intrauterine pregnancy, improves at the same time the blood supply of the pregnant tube, thus promoting the development of the ectopic fetus. The diagnosis is always very difficult. During the first three months the diagnosis will be either intrauterine pregnancy complicated by pyosalpinx, or simple extrauterine pregnancy, the uterus always being somewhat enlarged in this condition. In a later stage it will be more than difficult to avoid the wrong diagnosis of a retroflexion of the pregnant uterus or intrauterine pregnancy complicated by ovarian tumor or pyosalpinx. The treatment of this condition is, of course, identical with that of ectopic pregnancy in general. [The possibility of such a condition may prevent those who are too ready with the use of the uterine sound from using it for a diagnostic purpose in cases of suspected ectopic pregnancy.—ED.]

Case of Attempted Criminal Abortion in Extrauterine Fetation.—W. D. SWAN (*Boston Med. and Surg. Jour.*, January 9, 1902).—The writer reports the following instructive case: A married woman, twenty-five years of age, had lost menstruation December 20th. February 7th she called on a female physician, who introduced instruments into the uterus for the purpose of "bringing her around." Patient was seized with violent pains on the morning of February 9th; curetted the same afternoon by two other physicians and died twenty-four hours later. At the autopsy a ruptured pregnant tube was found. Prosecution of the physician who attempted to produce an abortion was impossible, since the curettement had destroyed "all evidence of the criminal operation."

Fetation in a Rudimentary Horn of a Bicornute Uterus.—MURDOCH CAMERON (*Jour. of Obst. and Gyn. of Brit. Empire*, January, 1902).—On examination of a married woman, who believed herself pregnant, the writer found cervix and uterus displaced backward and to the left side by a large swelling occupying the right broad ligament. A diagnosis of ectopic pregnancy was made and laparotomy performed. At the operation it was found that there was a double uterus, the right half of

which was pregnant. The more interesting fact was that the pregnant half had no communication with the vagina. The author advances two explanations as to the mode in which the atretic horn became pregnant: First, by some small tubule in the cervix, which afterwards became obliterated, or by one fallopian tube grasping the other, and thus forming a continuous channel, through which the sperm could reach the imperforate sac.

PEDIATRICS.

Dilatation of the Heart in Children.—EUSTACE SMITH (*The Practitioner, The Post-Graduate*, February, 1902).—Cardiac dilatation to a moderate extent is far from uncommon in early life; in childhood the heart dilates with exceptional ease. It may occur in a flabby, ill-nourished or degenerated heart without any special bar to the passage of the blood from the organ. This condition may be found in anemic, weakly boys who exercise too violently, in children who grow too rapidly, in nephritis and broncho-pneumonia. It also often occurs in infectious fevers and septic states, of which diphtheria, influenza and rheumatism are examples.

Dr. Lees has called attention to the constancy with which dilatation occurs in acute rheumatism. This arises early in the attack and is accompanied by a thinning of the walls. The physical signs very much resemble a pericardial effusion. The shape of the cardiac dullness is characteristic. It reaches upward far above the third rib, and its right border is continued downwards and outwards to the right fifth interspace to join the liver dullness, instead of curving inwards in the infrasternal notch. Endocardial murmurs are usually found.

Mild dilatation does not produce any symptoms. On physical examination, the heart's apex will be found diffused and difficult to localize; the first sound is muffled and the area of dullness is widened. Sometimes the external jugular veins are unusually visible. In extreme cases these signs are increased and the pulmonary and aortic second sounds are accentuated.

Destruction of muscle tissue is carried to a greater degree in diphtheria and influenza than in rheumatism.

Very rapid broadening of the area of dullness is a symptom of the utmost moment, and if it be accompanied by vomiting, coldness of the surface and partial collapse, we should make a cautious prognosis.

After diphtheria, the heart's dullness should be examined from day to day.

A recumbent position should be enforced and the diet should be regulated with care. Fruits and starches should be avoided; the patient must be fed with milk, custards, soups, yolk of egg and stale bread.

Iron combined with strychnine should be our greatest resource as far as drugs are concerned. Alcohol is also good in certain cases.

The Action of Heat Upon Cow's Milk as an Infant Food.—DESSAU (*Pediatrics*, February 1, 1902).—Heat causes new combinations to occur in milk which are detrimental to certain nutritious elements. The calcium salts are disturbed in their combination with citric and phosphoric acids so that they are precipitated, and this destroys the antiscorbutic property of the milk. The fats are partially decomposed and the globulins and nucleins are coagulated.

But the curds forming in the infant's stomach are much finer from heated milk than from raw milk. Heated milk is thus readily digested and assimilated. The tendency to constipation can be overcome by an extra amount of sugar. The milk should not be heated to the boiling point. A correct degree of heat must be used, and when used the advantages outweigh the disadvantages.

A Contribution to the Symptomatology of Cretinism and Other Forms of Idiocy.—KOPLIK and LICHTENSTEIN (*Arch. Pediatrics*, February, 1902).—The authors describe a prominence on the hand which they have found only in cases of cretinism and in degenerates. This prominence is distinctly localized immediately adjacent to the groove which separates the palm of the hand from the forearm. It is situated on the antithenar eminence immediately over the pisiform bone. A similar prominence can be seen on the forefoot of the cat. It is not due to the habit of crawling, as it was found in a Cretin three months old.

Multiple Arthritis in a Child Two Years Old Suffering from Gonorrheal Vulvovaginitis.—ACKER (*Arch. Ped.*, February, 1902).—A colored female, two years old, when first seen had a profuse vaginal discharge which was found to contain numerous gonococci. It had existed for several days. A few days later the ankles and knees were found painful and swollen. Fever was present (100° to 103°) for several days.

The child was treated with salicylate of soda (five grains every four hours) and hot douches of boric acid solution.

Under this treatment she improved in a few days. Then tincture of iron was substituted for the salicylate.

Only a small amount of serum was obtained from a swollen knee by aspiration. It contained many leucocytes, but no gonococci.

Harelip.—RACHFORD (*Ibid.*).—This writer reports a remarkable series of cases of harelip occurring in one family. There was a marked history of tuberculosis in the family, and the mother of the children was suffering from this infection.

The first two children, born two years apart, were girls, and both had harelips and cleft palates.

As the mother approached the third confinement she became confident that her baby would be a boy and would not have the deformity. This proved true.

At the approach of the fourth confinement she was in a state of great excitement because of the fear that her baby would be a girl and have the deformity. This also proved true, and the infant had an awful deficiency of the face, but lived only a few hours.

In her fifth pregnancy she was confident that a boy would be born, which also proved true, and he was free from the deformity.

In her sixth pregnancy she was haunted with the same fear, and again a girl with harelip was born.

In her seventh pregnancy she was in the happiest frame of mind, and a boy without harelip was born.

During this time she had lost both her boys from tuberculosis, which caused her great grief.

The Present State of Our Knowledge of Infant-Feeding.—ROTCH (*Jour. Med. and Sci.*, January, 1902).—In this abstract of a paper read before the Maine Academy of Science, Rotch asserts that recent advances have enabled us to formulate certain basic principles which are well proved, and which should be adopted and worked out by individual physicians.

An infant's food in the first week of life should be rich in sugar, and the proportion should be gradually diminished to the end of the first year. He does not recommend starch decoctions.

The quantity of milk must be adjusted to the rapidly growing stomach.

Experiments have shown that milk sugar is superior to cane sugar in preventing the decomposition of proteids.

The casein and lactalbumin should be separately considered when adjusting the food to the infant.

Biologic Relation Between Milk and Serum.—MORO (*Wien. Klin. Wochenschrift*, October, 31, 1901).—In studying the alexin bodies in the milk and serum of the infant this author finds that neither cow's milk nor human milk possesses any appreciable bactericidal properties.

Furthermore, he demonstrated that the serum of breast-fed infants possesses a much stronger bactericidal power than the serum obtained from the blood of infants fed on cow's milk.

As soon as an infant is placed on artificial food its blood rapidly diminishes in bactericidal power.

This property may also be extended to hemolysis, as it was found that the serum of breast-fed infants is more hemolytic than artificially fed infants.

A New Reaction of the Human Milk.—MORO (*Wien. Klin. Wochenschrift*, January 30, 1902).—When a few drops of human milk are added to fluid obtained from a hydrocele this latter fluid will coagulate to a firm mass in a few minutes. This does not happen if cow's milk is used.

This reaction occurs with human milk even when heated, and therefore must exclude the action by ferment.

He was unable to determine the factors engaged in this peculiar phenomenon.

NEUROLOGY.

IN CHARGE OF

SIDNEY I. SCHWAB, M. D.

The Sensory Segmental Area of the Umbilicus.—WILLIAM G. SPILLER (*Phila. Med. Jour.*, February 8, 1902).—A report of a case of fracture of the tenth thoracic vertebra with complete compression of the cord, in which the sensory distribution could be very accurately worked out. The disturbance in the sensation confirmed Head's view that the sensory area of the umbilicus lies between the ninth and tenth thoracic areas. In this case the upper border of the anesthetic area passed directly through the umbilicus. He concludes from this case: (1) That Head is probably correct in placing the umbilicus between the ninth and tenth thoracic sensory areas. (2) That the Babinski reflex may be absent in cases of lesions of the lumbar and sacral regions of the cord, though the clinical symptoms may indicate merely that the cord is compressed above the lumbar region. The absence of the Babinski reflex in such cases may possibly be a valuable sign of disorganization of the lumbar and sacral regions. (3) That while loss of the patellar reflexes may occur from transverse lesions of the cord above the lumbar region, the cause of this loss, in a certain number of cases, is to be found in lesions of the area through which the reflex arc passes.

Locomotor Ataxia and Syphilis—Clinical Lecture (Abs.).—A. FOURNIER (*The Med. Press and Circular*, January 22, 1902).—This is a very notable contribution to the problem of the etiology of tabes dorsalis by the authority who first suggested its probable solution as long ago as 1875. When Fournier first proposed the syphilitic origin of tabes, his theory received many objections, the most forcible of which was that the connection between syphilis and tabes was merely a morbid coincidence. To show how absurd this objection was, Fournier set

himself the seemingly impossible task of collecting and studying one thousand cases of tabes. This was accomplished in the course of twenty-five years, and in this lecture he presents the results of this careful study. Special attention was given to every one of these cases, so that they are in every respect trustworthy, both as to diagnosis and clinical history. Out of one thousand tabetics an unquestionable history of syphilis was obtained in nine hundred and twenty-five; that is, in ninety-three per cent. The seven per cent. remaining can be explained either on the ground that the original syphilis was so benign that it escaped notice, or that it was conceptional or hereditary. Marion has made the assertion that if syphilis was found to have existed in as large a proportion as ninety-three per cent. of patients suffering from tabes, in reality it existed in the proportion of one hundred per cent., because the remaining percentage could well come in under the limits of error. In ninety per cent. of this series the tabetic symptoms followed a syphilis which, at the onset, was benign; and by a benign syphilis Fournier means a small number of secondary symptoms, their slight nature, and their short duration. The author further believes that the graver tertiary symptoms are generally preceded by benign secondary ones. All individuals affected with syphilis have not the same chance of acquiring tabes dorsalis; certain accidental factors come into the question, among which are noted nervous exhaustion, nervous heredity, and inadequate syphilitic treatment. The whole subject of the etiology of locomotor ataxia is summed up as follows: Principal, effective, and essential cause of tabes—syphilis. Accessory factors, nervous exhaustion, nervous heredity, and inadequate treatment of syphilis at the outset.

The Corneo-Mandibular Reflex.—F. VON SOLDER (*Neurolog. Centralbl.*, February 1, 1902).—This is a new reflex, mention of which the author has not been able to find in the literature. It finds no place even in Bechterew's recent paper, "Über Reflexe im Antlitz und Kopf Gebiet" ("Reflexes in the Face and Head Region"), in which all reflexes that have been observed in this region up to this time are described. The reflex is obtained as follows: When the cornea is touched there is a movement of the lower jaw towards the opposite side. As any corneal irritation is always followed by the well-known corneal reflex, the new reflex is always accompanied by the latter. In order to obtain it, the mouth must be held somewhat open. The reflex movement is a purely transverse one, closing or opening of the mouth never having been observed. The reflex rate is slow. By a repetition the reflex movement disappears, to return, however, after a short period of rest. The observations in regard to the reflex in pathological cases have been few, although it was studied in cases of coma, delirium acutum, epileptic coma, and syphilitic softening in the pons. In these cases the corneo-mandibular reflex persisted after the corneal reflex had disappeared. Whether this new reflex has any clinical importance remains as yet a question. Possibly it may be of use in the localization of focal processes in the brain stem.

A Case of Infantile Tabes.—MARTIN BLOCH (*Neurolog. Centralbl.*, February 1, 1902).—This is a report of an additional case of tabes in a young person to be added to the constantly growing material on this subject. A clinical resume of the case is as follows: Boy, seventeen years old; no syphilitic history either in the parents or in the patient. He was never seriously sick, though always somewhat weak. Mentally normal in development. For one year or more the patient has suffered from attacks of anxiousness accompanied by palpitation of the heart, shivering, and an intense desire to micturate. For three or four years there has been ischuria and, at times, incontinence both day and night. On physical examination the patient showed marked symptoms of infantilism, the genitalia undeveloped, and the voice distinctly juvenile. The right pupil is larger than the left; the left shows an Argyle-Robertson reaction, while the right is absolutely unchanged either by light or accommodation. There is some sensory dis-

turbance about the region of the buttocks. The gait is slightly ataxic, and there is some evidence of a Romberg symptom. The upper portion of the leg shows some hypesthesia and hypalgesia. Complicated movements of the leg, when the patient is lying down, cannot be carried through on account of the ataxia. There is some hypotonia in the lower extremities. Muscular sense is slightly impaired. The knee jerks are absent on both sides. Ophthalmoscopic examination shows a bilateral temporal pallor of the papillæ. The diagnosis of tabes in this case cannot be disputed. Pupil changes, Westphal and Romberg symptoms, bladder symptoms, sensory disturbances, and definite evidences of inco-ordination can mean nothing but tabes, whether they are found in an adult or in a child. The above is one of the few cases of infantile tabes in which hereditary syphilis evidently plays no role. The attacks of anxiousness and palpitation might possibly be considered as a form of heart crisis.

GENITO-URINARY SURGERY.

IN CHARGE OF

H. McC. JOHNSON, M. D.

Note on Gauging Vesical Capacity.—LYDSTON (*Jour. A. M. A.*, February 8, 1902).—The ordinary method of injecting the bladder with fountain syringe or glass irrigating apparatus, with or without catheter or tube, to measure its capacity, is open to serious impeachment on account of inaccuracy; first, because the presence of the catheter or tube in the deep urethra will create a *besoin*; secondly, if a large tube is used the water will rush into the bladder so rapidly that the bladder is literally “surprised” into a reflex resentment; and thirdly, if the hydrostatic method is employed without tube or catheter, there is awakened bladder resentment both from stimulating the urinary *besoin* and surprising the bladder muscle.

Symptomatically cases may be divided into two classes: those in which the abnormal calls to urinate are worse at night, and second, those in which the greatest frequency is during the waking hours. The former are mostly from an organic condition, the latter from a greater or less degree of neuropathic disturbance.

To measure bladder capacity in the first class a hypodermic of morphia is very useful; so, too, an application of eucain or cocain to the prostatic urethra. A small catheter should be used, save in the exceptional instances in which sphincteric resistance is easily overcome and the hydrostatic method without catheter can be used under relatively low pressure. Sterile water or normal salt solution is best for distending the bladder.

In the second class it is only necessary to have the patient drink moderately of pure water during the evening, and, when aroused at night by a desire to micturate, to pass water on each occasion in a separate vessel. The greatest quantity obtained at any given micturition represents the maximum capacity of the bladder from a clinical standpoint.

The Accuracy of the Negative Roentgen Diagnosis in Case of Suspected Calculous Nephritis and Ureteritis.—LEONARD (*The Phila. Med. J.*, February 1, 1902).—The absence of the shadow of a calculus in a negative showing certain definite details is conclusive evidence of the non-existence of all calculi in that region. It is essential, however, that the technique shall be faultless and that the operator shall have sufficient ability to properly interpret the negative, whether it is sufficient in detail and what the shadows represent. The high penetrating power of the

rays necessary for fluoroscopic examinations renders calculi of little density invisible, and hence this method is of small value. Out of 206 suspected cases calculi have been shown by the skiagraph in sixty-five. In one case only where the Roentgen diagnosis was negative was a stone found, though many of the cases in which a negative diagnosis was rendered have been operated upon. The error in this case was due to a faulty position of the plate, the shadow of the stone not falling upon it at all. In three other cases of negative diagnosis the patients subsequently passed small calculi. Here the error was made in interpreting the negative.

Considering the harmlessness of this method and that the percentage of error so far in the negative diagnosis is less than two per cent., it is certainly preferable to other methods.

The ability to detect stones in both kidneys or ureters, to exactly locate them, to observe their size and number and thus to fix the field of operation, are points of no mean worth.

The Technics of Nephropexy as an Operation per se and as Modified by Combination with Lumbar Appendicectomy and Lumbar Exploration of the Bile Passages.—EDEBOHLIS (*Annals of Surgery*, February, 1902).—Movable right kidney and appendicitis frequently co-exist, and the author advocates examining and removing the appendix through the lumbar incision made for anchoring the kidney. So, too, diseases of the bile passages, such as cholelithiasis, cholecystitis, pericholecystitis, etc., may be found accompanying nephrotosis. While it is an unsettled matter in regard to operating upon the gall-bladder and bile ducts through the lumbar incision, they may in the average case be just as satisfactorily examined through it as through the usual anterior incision. Lumbar appendicectomy is performed by opening the peritoneum to the outer side of the ascending colon. Through this incision the appendix may be delivered into the wound, examined and removed, according to the method practiced by the operator. By enlarging this opening in the peritoneum sufficiently to admit of free access to the gall-bladder, bile ducts, liver, duodenum, pylorus, etc., much knowledge may be gained about them through palpation, and even without opening the peritoneum much positive information of a negative character may be obtained.

The author does not hesitate to do bilateral nephropexy at one sitting. He used ether as an anesthetic in all but four of his 186 cases reported. Six of his cases which had nephritis before the operation, obtained a permanent cure of the disease from it.

It is interesting to note that the author makes a longitudinal lumbar incision, bluntly separates the fibers of the latissimus dorsi muscle, draws out of the way the iliohypogastric nerve, or, if impossible, cuts it (with subsequent suturing), luxates the kidney with its fatty capsule through the wound, and dissects off and removes the whole of the fatty capsule. If removal of the appendix is indicated, replace the kidney temporarily in the abdomen, open the peritoneum and deliver the appendix into the wound. After either inverting or amputating it, and after replacing the intestines, explore by palpation the duodenum, common bile duct, cystic duct, gall-bladder, under surface of the liver, and pylorus. Having again delivered the kidney through the wound, the capsule proper is divided along the convex border and each part dissected from the organ half way to the pelvis. Four fixation sutures of forty-day catgut are passed through these flaps and under the attached portion of the capsule, two near each pole of the kidney. These sutures are now passed through the abdominal parietes. The wound in the muscles and fascia is closed with interrupted forty-day catgut sutures, then the fixation sutures are tied. All of these sutures are buried by closing the skin over them with intra-cuticular suture. Apply the dressings smoothly, as the patient is to lie upon the back for a week before changing. The author's mortality in 186 cases has been three. No attempt is made to anchor the kidney as high up as

normal, but rather in such a position that the lower pole may extend as far below the crest of the ilium as the upper extends above the lower border of the twelfth rib. The patient is placed upon the table with the abdomen downward, having the author's air-cushion under the upper portion of the abdomen. A slight degree of mobility after recovery is not incompatible with success, as there may be some stretching of the connective tissue fixation bands. Unless the kidney can be crowded upward so as to cause it to disappear under the ribs, it is regarded as anchored in the loin sufficiently for all practical purposes.

Tuberculosis of Bladder, with Report of Case.—MARKLEY (*Illinois Med. Jour.*, February, 1902).—After reviewing the subject, Markley reports the case of a young woman, unmarried, of thirty years of age, who had Pott's disease eight years previously, from which she entirely recovered. For three years she has had bladder trouble, with almost constant desire to urinate. Tubercle bacilli were demonstrated in the catheterized urine. By means of a Kelley speculum the interior of the bladder wall was inspected. This discovered a deep irregular ulcer the size of a nickel on the left posterior wall of the fundus of the bladder with a granulating base, the rest of the bladder seeming healthy. A saturated solution of silver nitrate was applied to the ulcer three times at intervals of a week, the bladder being irrigated daily with chinisol, ten grains to quart of water. The patient completely recovered in about eight weeks, has remained so for a year, and has gained thirty pounds in weight.

A Case of Stricture of the Urethra in a Female, Complicated with Enuresis, Dilatation of the Bladder, Ureters and Kidneys.—TUCKERMAN (*Cleveland Med. Gazette*, December, 1901).—The author reports a case of a girl, five years of age, which he had under observation from February 28, 1899, to April 20, 1900. Patient had always had bowel trouble and suffered a good deal from colic. With a previous history of frequency of urination, from her fourth year she wet the bed at night and her clothes during the day constantly. Local examination revealed a fissure running from anterior border of the anus to the fourchette, and an incarcerated clitoris. Attention to these gave apparent improvement. April 12th she was suddenly taken with pain in the loins, severe dysuria and the passage of blood in the urine; the pain chiefly on the right side, shooting downwards towards the bladder, being strongly suggestive of renal calculus. The bladder was distended, reaching up to the navel. A stricture of the urethra, No. 10 Fr., was detected at its proximal end. This was dilated to 24 F. and the bladder emptied with a catheter every three or four days, there being always some residual urine. The patient greatly improved under treatment until April 17, 1900, when she presented herself with pain in the back and loins and some fever. These symptoms rapidly grew worse, until she suddenly died, April 20th.

At the autopsy the bladder was found dilated, with greatly thickened walls. Both ureters were dilated irregularly throughout their whole extent, and likewise the pelvis of each kidney, the cavity encroaching on the substance of the kidney itself. The whole urinary tract contained pus. The ascending mesocolon was continuous with the mesentery, and allowed as free movement of the ascending colon as of the small intestine itself. This condition doubtless explained in part the colic and bowel trouble of which the patient suffered.

DERMATOLOGY AND SYPHILIS.

IN CHARGE OF

MARTIN F. ENGMAN, M. D.

Vaccine Virus—Its Preparation and the Complications Attending its Use.—JOSEPH MCFARLAND, M. D. (*The Jour. of Amer. Med. Ass.*, January 26, 1902).—Dr. McFarland gives in this article a very interesting description of the preparation of the bovine virus. As this knowledge is no doubt of great value to every physician, we give this part of the article in full:

Bovine Virus.—The continuous propagation of vaccine virus from heifer to heifer is said to have originated with Negri of Naples about 1842, and to have required about forty years for its advantages to be so widely appreciated as to permit its introduction into most of the European countries and our own as well.

The advantages of the bovine virus are almost beyond dispute. The vaccinia is kept growing in animals for which it is natural, and in which it can be supposed to maintain its most natural degree of virulence. It is secured from animals whose healthy condition can be determined beyond any doubt, and from animals in which the dreaded human diseases cannot occur. The micro-organisms contained in the bovine virus are nearly all of forms which produce no disease of man. There is no possibility of the transmission of syphilis, and no probability of erysipelas, gangrene, septicemia or other of the affections referable to human virus.

Preparation.—In every well-regulated vaccine establishment some modification of the following routine is carried out: Small calves or heifers are received in a special part of the establishment and subjected to a careful toilet. They are curried and brushed, the hoofs trimmed and the feet washed. The entire skin is then washed very thoroughly, a disinfectant usually being employed, then washed out with sterile water. After remaining until the time for operation in a warm stable, they are next taken to a modern operating room, strapped to a table, and shaved over both thorax and abdomen. The skin is washed with soap and water, then with a disinfectant solution, and finally with sterile water, after which the hairy parts are covered with sterile towels and the denuded skin dried. Scarifications more or less extensive, according to the taste of the operator, are next made through the superficial layers of the skin, no blood being drawn, and the virus is rubbed into the scarified area with a spatula.

After this the animal is transferred to the hospital of the institute to await the development of the vesicles. Scrupulous cleanliness must be observed in the hospital, and the temperature should be carefully taken and every precaution adopted to keep the calf well and its lesions free from secondary infection. After the lapse of about six days the vesicles are "ripe" and along the lines of scarification elevated grayish-yellow vesicles covered with macerated epithelium appear. When ready for the removal of the pulp, the calf is again taken to the operation room, placed on the table, given a thorough toilet, and dried. The operator then removes the "pulp" covering the vesicles with a moderately sharp curet, again being careful to draw no blood. The material thus collected is the "vaccine pulp." Different producers employ different methods in utilizing this material. Some reject all the superficial material as unfit for use and collect the clear lymph which subsequently exudes, but the majority use the pulp itself, either spreading it upon points or mixing it with glycerin.

It is evident to anyone possessed of even a small amount of bacteriological knowledge, that in spite of the precautionary measures mentioned, it must be impossible to secure sterile pulp. Indeed, every vaccine contains three classes of micro-organisms: 1. Those specific for vaccinia. 2. Those normally living

upon the skin of the animal. 3. Those accidentally entering from the dust of the stable. As a rule, all forms are harmless, but it is only those of the first class that are desirable, for whether they are usually harmless or not, it is doubtful whether any well-informed physician of the present time would prefer to introduce into his own tissues or those of his patients any unnecessary micro-organisms.

Ivory Points and Glycerinized Virus.—The ivory point, spread with the pulp or with the exuding lymph below it, is a device which was so far superior to the "scab" that it met with a world-wide reputation and approval, but it is subject to disadvantages that must be mentioned now that still better preparations are before us. The ivory point is spread with matter rich in bacteria. It is true that many bacteria are killed by drying, but it seems equally true that most of those clinging to the ivory remain alive, probably because of the film of albumin with which they are surrounded. At all events, the death of the bacteria takes place so slowly that the vaccine organism itself dies before the bacteria, and they are never gotten rid of.

Seeing this disadvantage, Dr. Moncton Copeman in 1891 devised the method of mixing the pulp with sterile glycerin of first quality, by which the contained bacteria were slowly destroyed, while the vaccine organism, whatever it is, remained alive. Copeman recommended the method in unqualified praise as being the method by which the bacteria can be destroyed and the vaccine organism preserved.

There are great advantages in this method, for it is eminently desirable that the bacteria be destroyed, and it is very gratifying to note that the profession is sufficiently awake to these advantages to now demand them.

There are, however, certain disadvantages. The resisting power of the vaccine organism is insufficient to enable it to endure the action of the glycerin much longer than the bacteria, and by the time that the bacteria are destroyed its own vitality is threatened. For this reason, virus is usually placed on sale while it still contains a few bacteria, thus, to a limited extent, defeating the very object in view. However, all must admit that it is better to have a few than a great many bacteria in the virus.

Antiseptic viruses are sold by some producers. They are made by the addition of a germicide to the virus, so that the bacteria are destroyed and the vaccine organism uninjured. This form of virus can still be regarded as in an experimental stage.

Treatment of Epithelial Skin Cancers and Non-Parasitic Sycosis With the X-Ray.—J. F. RINEHART, M. D. (*Phil. Med. Jour.*, February 1, 1902).—The author reports four cases of epithelioma and one of non-parasitic sycosis cured by the X-ray. Dr. Rinehart's method differs somewhat from the usual procedure. He exposes the part with the usual lead sheet about healthy skin to the rays successively every day for several days, or until there is a very mild reaction. The time of exposure beginning at five minutes, at a distance of six inches, and increased a minute a day until reaction occurs. After a definite redness has been produced the sittings cease and the ulcer begins to heal. More exposures are finally given if necessary. He sounds, though, a note of warning as to too long and close exposures in the beginning of treatment. Great caution is necessary to prevent ugly burns. It is best to try a couple of exposures and then wait a few days for the reaction.

In watching the result of the rays upon the non-parasitic sycosis (in which case the hairs fell out), it occurred to the author that the effect of the rays might be in the nature of electrolysis and thus destroy the cancer cells as well as the hair bulb, instead of the reactionary inflammation to which this effect is usually ascribed.

Researches on the Parasitic Nature of Eczema and the Eczema Staphylotoxine.—BOCKHART (*Monatshefte f. Praktische Dermatologie*, 1901, T. xxxiii., p. 421; *Annales de Derm. et de Syph.*, December, 1901).—Of all the work done in the last years upon the etiology of eczema, there is probably none so important as this of Bockhart's, as it gives us a clue to the various manifestations of the disease and opens a broad field for future research. His conclusions are as follows: Eczema is an infectious inflammation of the epidermis, produced by the staphylococcus, in the following manner: The healthy follicle of a predisposed individual contains the live but inactive staphylococcus. These organisms attain an acquired vitality from some internal or external source acting upon the skin, which changes or increases their nutritive conditions, and in consequence there is excreted the staphylotoxine. When this staphylotoxine is diffused into the epidermis it produces a serotactic effect and the formation of papules or vesicles. The follicular papule or vesicle contains serum and staphylococci, while those near the follicle, or perifollicular ones, are often sterile. After a time the cocci increase in the follicular vesicles, producing an emigration of leucocytes; still later the sterile vesicles in the neighborhood are infected by the passage of the cocci through the lymph channels and edematous epidermis; then the serous contents is changed by the subsequent leucotaxis. The purulent transformation of the vesicles or the persistence of this leuco-serous state depends upon the plasmine of the staphylococcus. The vesicles finally open, the moist eczematous surface and its neighborhood become infected by the staphylococcus containing a great quantity of a very active staphyloplasmine. Then there is produced the purulent or pyogenic conditions which complicate an eczema (impetigo and furuncles). If the eczema becomes chronic, then there supervenes other conditions in the cutis and subcutis not directly due to the staphylococcus.

Colloid Degeneration of the Skin.—C. J. WHITE, M. D. (*Jour. of Cutaneous and Genito-Urinary Dis.*, February, 1902).—This is probably the fifth undoubted case of this affection yet recorded. It occurred in an Irishman, fifty-two years old, who had always enjoyed the best of health. For the last ten years he had been constantly exposed to the extremes of weather. The lesions appeared four years ago upon the back of one hand, and two years later many similar lesions occurred upon the exposed parts. He has no subjective symptoms. The individual lesions are smooth, flat, from one-eighth to one-fourth inch in diameter, irregularly rounded or polygonal, translucent, of yellowish-brown color, soft, elastic and almost gelatinous to the touch. The papules are upon the backs of the hands, cheeks, outer canthus of each eye, and upon the tragus, antitragus and pinna of the ears. Histologically, the stratum corneum is hyperplastic and stratum lucidum more pronounced than usual. Stratum granulosum and spinosum are thinned. There are no mitoses or pigment in the epidermis. In the corium the papillae have disappeared, and in their places are found dense zones of degenerated elastic tissue (elacin) which follows down by the sides of the hair follicles to meet the tumor mass below. Within this zone of elacin is the tumor proper, consisting of small or large irregularly shaped islands of tissue bounded at intervals by capillaries whose walls show thickened masses of elacin. Within these enclosing capillary walls the true colloid material appears, composed of coarse granules which stain yellow with picric acid.

Oidiomycosis of the Skin and Its Fungi.—H. T. RICKETS (*Jour. of Med. Research*, December, 1901).—The cases of so-called blastomycetic dermatitis have continued to multiply since the initial description of the disease and the demonstration of its causative factor, the budding blastomyces, by Gilchrist. Chicago has proved a particularly rich field in this respect, and from there have we had some of the best articles upon the affection; but our eyes glistened with admiration when we received December number of the *Journal of Medical Research*.

Dr. Rickets, of Chicago, occupies the whole of this issue by an exhaustive brochure of five hundred and forty-five pages upon "Oidiomycosis (Blastomycosis) of the Skin and Its Fungi." In this work he enters exhaustively into the history and literature of this group of organisms and their pathologic action upon man and animals, reviews most critically all the reported cases of blastomycetic and protozoic dermatitis, and reports some additional ones. The text is beautifully and fully illustrated.

He concludes his most elaborate and painstaking observations as follows:

1. The so-called protozoic disease of Posadras, Wernicke and others; Busse's and Curtis' saccaromycosis hominis, and Gilechrist's blastomycetic dermatitis are various manifestations of the same disease.

2. The condition in the skin possesses constant clinical and histological characteristics which separate it positively from all other skin diseases, particularly verrucous tuberculosis, carcinoma, and syphilis.

3. The organisms from various cases differ in minor respects among themselves, but are so closely related morphologically and biologically as to justify their inclusion in a common genus, *oidium*; they are thus analogous in a pathogenic sense to the fungi which cause actinomycosis, and to those causing trichophytosis.

4. The variations among the organisms allow the recognition of three morphological types:

a. Blastomycetoid or yeast-like.

b. *Oidium*-like.

c. Hyphomycetoid.

5. There are two histological forms of the disease in the skin, the eosinophilous and non-eosinophilous, the former being associated with the mould type of the organism.

6. In accordance with conclusion 3, oidiomycosis is an appropriate term for the conditions caused by the organisms, and oidiomycosis cutis for the disease as it occurs in the skin.

7. Aside from the infections considered in this communication, certain cases which have been described in the literature from time to time indicate that *oidium*-like organisms may cause other severe pathological conditions in man.

LARYNGOLOGY AND OTOTOLOGY.

IN CHARGE OF

WILLIAM E. SAUER, M. D.

Malignant Disease of the Nose and Accessory Sinuses.—GIBB (*New York State Jour. of Medicine*, January and February, 1902).—Malignant disease of the nose and accessory sinuses is not common, though sarcoma is not so rare as statistics seem to indicate. The author has observed quite a number of cases. The most usual site of sarcoma is either the septum or middle turbinate bone. In the nose, sarcoma progresses more slowly than in other parts of the body, and does not exercise so great an influence on the general health. The symptoms are, in the main, similar to all obstructive diseases of the nose. A very early symptom is epistaxis, and it is present in nearly every case; inspection shows the nose to contain a reddish, fleshy-looking mass, which bleeds easily when touched with a probe. Pain is often absent, though may be severe when the sinuses are involved. The tendency of the growth is to extend by way of the natural channels. No period of life is exempt, as cases are reported from early childhood to old age. Nearly all forms of sarcoma are met with in the nose, though the round and spindle-cell varieties are most frequently found. The diagnosis is, as a rule, not difficult,

and can usually be made from the clinical picture, but oftentimes the microscope must be resorted to. Some authors object to the removal of a portion of the growth for microscopic examination, owing to the danger of exciting more rapidity of growth. The microscope is not infallible, as the author has known of cases where the microscopic diagnosis was that of malignancy and the subsequent course of the cases proved it to be fallacious. More frequently the symptoms suggested malignancy, and the microscope failed to confirm it in cases which subsequently proved the microscopic diagnosis in error. The prognosis is unfavorable, as the records show but few recoveries. Success depends on the complete and thorough eradication of the growth. Small growths may be removed by intra-nasal methods, but the majority are seen when the disease is too far advanced, and more radical measures must be resorted to. The author could find records of only two cases in which Coley's fluid had been used. One of these cases had been operated upon and the good result was based on the operation, while in the others there was no benefit following the use of the toxins.

Primary carcinoma of the nose is rare. Its favorite site is high up in the nose, in the region of the sphenoid cells. The progress is rapid, as a rule, and the rapidity of its growth is undoubtedly accelerated by surgical interference which stops short of complete eradication of the growth. Unlike sarcoma, carcinoma spares no tissue, it spreads rapidly into the sinuses, involving both the hard and soft tissues, and breaking into the cranial cavity. As in other parts of the body, its progress is marked by excruciating pain. The early symptoms of carcinoma are, in many respects, similar to all growths in the nasal chambers. The two symptoms which should put us on guard are vascularity and pain. Pain is present very early and is of the same unmistakable lancinating character observed in cancer in every region of the body. The diagnosis is not difficult when well advanced and is confounded only with sarcoma. The appearance of carcinomatous growth is pale, resembling a mucous polyp, but it is firm and bleeds easily when touched, while sarcoma has a red, fleshy appearance. The early involvement of the cervical lymphatics in carcinoma is also an aid in the diagnosis. The so-called cylindroma of Billroth is the only variety that shows little tendency to recur, and that offers any favorable prognosis. All others admit of no ground for a favorable opinion. The treatment must be radical.

Sarcoma of the naso-pharynx is rare. Of the twelve cases reported, all seemed to have their origin from the vault. Sarcoma of this region gives rise to few symptoms until it becomes large enough to cause obstruction. Recurrence after operation takes place almost immediately. Carcinoma of this region is even less frequent. Only nine cases are reported. The progress is rapid and the treatment can only be palliative.

Primary malignant disease of the accessory cavities is rare. Five carcinomas and three sarcomas are reported. In one case of sarcoma there was no return after removal for eight years. The carcinomas all proved fatal in a short time. The author, in a tabulated form, gives the history, age, sex, seat, nature and duration of growth, side affected, treatment and results of one hundred and eleven cases of sarcoma, and forty-eight cases of carcinoma of the nasal chambers, twelve cases of primary sarcoma, and nine cases of primary carcinoma of the naso-pharynx, five cases of primary carcinoma and three cases of primary sarcoma of the accessory sinuses.

Abscess of the Temporal Lobe Following a Chronic Otorrhea Cured by Operation.
—HOLSCHER (*Muench. Med. Wochenschrift*, No. 40), reports a case of abscess of the temporal lobe following a chronic otorrhea in a male aged eighteen. The patient was first seen on June 17th. The cause and duration of the otorrhea not known. Six months previous the patient noticed a bloody discharge from right ear, but it never caused him any trouble until June 12th, when he had a severe pain in front and back of head. He also claimed to have had a chill, with

fever. Two days later he consulted a physician, who removed a large polyp from the external auditory canal. The following day he had a severe chill, headache with dizziness, and vomited several times. When he entered the hospital (June 17th) his temperature was 38.50 C., pulse 114. Had severe headache, especially in front and back of head and back of neck. His head was pulled backward. Pupils were normal. No nystagmus. The sensorium was clouded. The external auditory canal was filled with foul-smelling pus, and the posterior upper wall was bulging markedly, almost filling the entire lumen of the canal. Nothing abnormal could be detected about the mastoid process. A radical operation was performed that evening. A sinus was found in the external auditory canal, leading into a cavity in the mastoid process, which was filled with cholesteatomatous material. This was removed and the dura exposed, and also the lateral sinus, but nothing abnormal could be detected. The wound was packed with iodoform gauze. The headache and fever continued, and on the 21st of June his pulse went down to 60. The gauze was then removed from the wound and a marked flow of pus followed, which came from the upper wall of the tympanum. A sinus was found which led up into the temporal lobe. The removal of the probe was followed by a large amount of foul-smelling pus and necrotic brain tissue. The pulse went from 60 to 150, but soon came down to 100. The upper wall of the middle ear cavity was removed and the abscess cavity packed with gauze. His headache was better and seemed to get along nicely until the evening of the 25th, when he began to have severe headache again. He was given an anesthetic and the wound enlarged. He improved steadily and recovered without any further mishap. On the 16th of July he was examined in a clinic for nervous and mental diseases, but symptoms of any nervous or mental disturbance could not be detected. Patient has since returned to his work.

OPHTHALMOLOGY.

IN CHARGE OF

JOHN GREEN, JR., M. D.

The Class of Cases of Simple Chronic Glaucoma in Which Operation is Not Advisable.—(C. S. BULL (*Med. News*, January 18, 1902).—Bull insists that chronic simple glaucoma should be regarded as essentially different from chronic glaucoma with acute exacerbations—*i. e.*, chronic congestive or irritative glaucoma. He points out that the three cardinal signs of simple chronic glaucoma—reduction of vision, contraction of the field, and cupping of the nerve-head—constitute precisely the symptom-group of an entirely different disease, namely, simple atrophy of the optic nerve. The differential diagnosis, in the last analysis, depends on the *presence* of increased intraocular tension (glaucoma) or its *absence* (optic atrophy). In the early stages of glaucoma these periods of increased tension are frequently evanescent, and the elusive symptom is apt to evade discovery unless tests be repeated several times on the same day and on different days. Application of the finger-tips directly to the sclera (instead of to the skin of the closed lids, in accordance with the usual practice) is believed to permit a better appreciation of minute differences in intraocular tension. In the later stages tension increases appreciably, and remains permanently higher than normal.

Iridectomy and sclerotomy are ineffective in reducing *normal* tension, and hence should only be resorted to when the tension is raised. Before attempting operation it is important to note the condition of the filtration angle, which is narrowed and apt to be closed in hypermetropic eyes; in myopic eyes, on the contrary, it is wide and less likely to be occluded. Repeated perimetric examina-

tions (preferably by different observers in order to eliminate personal error) which uniformly show progressive nasal and peripheral contraction would, in general, indicate operation; but great care should be exercised not to confound true glaucomatous defects with those due to disease of the retinal vessels. Scotomata are the forerunners of subsequent defects, and thus offer a fairly reliable prognostic guide.

The appearance of the disk is often of little value for differential diagnosis, as the atrophic excavation of simple atrophy implanted on a physiologic cupping may produce an ophthalmoscopic picture in no wise distinguishable from that of a depression due to glaucoma. Many cases, moreover, present pupils responsive to light, as well as normally deep anterior chambers. Post-operative hemorrhage is always to be feared in the presence of arterial pulsation, which, however, is not diagnostic.

Iridectomy is indicated if (1) under myotics the field which is but moderately contracted widens, and central vision improves, (2) tension is increased, (3) the iris is mobile, (4) moderate cupping of the nerve-head exists. Iridectomy should be done early, and is more likely to be permanently curative the higher the tension. High tension after operation usually means an unfavorable result.

Iridectomy is contraindicated if (1) central vision be greatly diminished, (2) tension be greatly increased, (3) deep cupping of the nerve-head exist, (4) contraction of the field has approached the fixation point.

Medical treatment in non-operative cases consists in the use of the myotics, eserine and pilocarpin. In favorable cases their use maintains vision and prevents further contraction of the field, at least for a long period. They are of no avail unless they "contract the iris and lower the tension."

Eserine is the more powerful, but is apt to produce ciliary congestion and occasionally follicular conjunctivitis. The salicylate and hydrobromate are preferred. To overcome the tendency to ciliary hyperemia the addition of cocaine to the solution is recommended.

Pilocarpin should be substituted for eserine as soon as the tension has diminished. It has the very positive advantage over eserine in that it does not bring about congestion of the ciliary processes. Morphine hypodermatically may be used as an adjuvant to both myotics. If the tension increases, eserine should again be resorted to.

In addition to the myotics, gentle massage of the globe twice a day may deepen the anterior chambers and increase vision. Any refractive error should be fully corrected and the general regimen of the patient carefully regulated.

[The introduction of cocaine into a solution of eserine, with a view to decreasing ciliary hyperemia, is hardly to be recommended. Cocaine is a fairly efficient mydriatic, and even in relatively small proportion probably interferes, in some degree, with the myotic action of eserine. It is possible to avoid much of the pain, "twitching," and other unpleasant effects of eserine, while retaining its myotic efficiency, by instilling it in very minute quantity. This can readily be accomplished by employing a dropping-tube with a tip drawn to an extremely fine point. The point of the dropper is introduced beneath the surface of the solution (eserine sulphatis, two grains; aquæ, one ounce) and by capillary attraction picks up a small fraction of a minim. It will often be found that as small a quantity of the myotic as is contained in a column of liquid 1 mm. high will suffice to produce a *full* myosis.—ED.]

BOOK REVIEWS.

THE JOURNAL OF MEDICAL RESEARCH. Volume VII., No. 1. New Series, Vol. II. January, 1902. Being the Continuation of the Journal of the Boston Society of Medical Sciences. Edited by HAROLD C. ERNST, M. D.

This number keeps up the excellent record made by the previous ones. It contains a number of most interesting communications to the field of medical research. The first article, written by Edwin O. Jordan, of the University of Chicago, is entitled "Notes on the Occurrence and Habitat of *Anopheles Punctipennis* and *Anopheles Maculipennis* in the Valley of the Androscoggin." It embodies the experiences of Prof. Jordan during a six months' search and study of this genus in the hilly parts of New Hampshire. An abstract of this excellent article is to be found in the February issue of this publication. Another very valuable communication is that by Hill on the branching of the bacillus diphtheriæ. Ohlmacher's work on the morphologic variations of certain pathogenic bacteria is also noteworthy.

This meritorious publication, the *Journal of Medical Research*, certainly is a solidly constructed scientific journal, and deserves united support on the part of the profession. While its articles, as is implied in the name of the publication, deal with original research, and are necessarily limited to embodying the efforts of the original workers in the more scientific parts of medicine, still the general practitioner will profit considerably by having such a scientific volume as this an integral portion of his library.

ANATOMY, DESCRIPTIVE AND SURGICAL. By HENRY GRAY, F. R. S., Lecturer on Anatomy at St. George's Hospital, London. Thoroughly revised American from the 15th English edition. In one imperial octavo volume of 1246 pages, with 780 illustrations. Price, with illustrations in black, cloth, \$5.50, net; leather, \$6.50, net. Price, with illustrations in colors, cloth, \$6.25, net; leather, \$7.25, net.

The new edition of this standard text-book is brought to date by a thorough revision of all chapters and the rewriting and elaboration of some sections, particularly those on the Brain, Spinal Cord, Nervous System and Viscera. Several hundred new illustrations have been added, and the number of colored illustrations largely increased. The scope of Gray's Anatomy is too well known to every practitioner to necessitate further mention; suffice to state that the present volume is of such value as to justify its continuance as the standard text-book on this subject.

THE AMERICAN ILLUSTRATED MEDICAL DICTIONARY. For Practitioners and Students. A Complete Dictionary of the Terms Used in Medicine, Surgery, Dentistry, Pharmacy, Chemistry, and the kindred branches, including much collateral information of an encyclopedic character, together with new and elaborate tables of Arteries, Muscles, Nerves, Veins, etc.; of Bacilli, Bacteria, Micrococci, Streptococci; Eponymic Tables of Diseases, Operations, Signs and Symptoms, Stains, Tests, Methods of Treatment, etc. By W. A. NEWMAN DORLAND, A. M., M. D., editor of the "American Pocket Medical Dictionary." Second edition, revised. Handsome large octavo, nearly 800 pages, bound in full flexible leather. Philadelphia and London: W. B. Saunders & Company. 1901. Price, \$4.50, net.

A large first edition of the work was issued in October, 1900. From the day of its publication the book met with a remarkably large sale, and the edition was exhausted in eight months. This immediate success was doubtless due to certain special features which distinguish this work from other books of its kind. The avowed object of the author has been to furnish in a volume of convenient size an up-to-date dictionary, sufficiently full for the requirements of all classes of medical men, or, in other words, to give a maximum of matter in a minimum of space and at the lowest possible cost. This object has been secured by the use of a large page, thin bible paper, and a flexible leather binding. The result is a truly luxurious specimen of bookmaking.

In this edition the book has been carefully revised. The author has also added upward of one hundred important new terms that have appeared in medical literature during the past few months. Among them appear "Anopheles," "Cryoscopy," "Johimbin," "Hemolysin," "Hedonal," "Sacrectomy," etc., words that have recently come prominently before the profession, and which, of course, are not to be found in any other dictionary.

Other valuable features of the book are to be found in the complete and satisfactory definitions, the etymological references in the original languages, and the clear method of indicating the pronunciation. There are over one hundred new tables, and the illustrations add greatly to the usefulness of the book.

In the preface the author avows his intention of making the work represent as fully as possible the live literature of the medical sciences by keeping it in all respects thoroughly up to date.

The illustrations and tables are worthy of special mention, and aid materially in making it a dictionary of superior value. The convenience of the work due to the thinness of paper, lightness of weight, and the flexible binding are a welcome change from the heavy, bulky dictionaries heretofore published.

VENEREAL AND SEXUAL DISEASES. By HACKETT and ARONSTAM. 208 pages. Price, \$1.00. Published by G. P. Engelhard & Co., Chicago.

This work, of the Standard Monograph Series, treats of its subjects in an elementary and concise way. It is divided into four parts. In the first part gonorrhea and its complications are considered. Parts II. and III. are devoted to chaneroid and syphilis. Part IV., consisting of the functional disorders of the male generative organs and the most important sexual psychopathies, is an entirely new departure in works of this kind, adding much to its value. The book is intended for students and the busy practitioner.

A TREATISE ON THE ACUTE INFECTIOUS EXANTHEMATA. By WILLIAM THOMAS CORLETT, M. D., L. R. C. P., London. About 400 pages. Royal octavo. Price, cloth, \$4.00; half-russia, \$5.00. F. A. Davis & Co., Philadelphia, Publishers.

No book has been published in the last year which so opportunely fits the present need of the profession as this one of Dr. Corlett. The country has lately been so rife with variola, varicella and impetigo that this most excellent publication is doubly welcome. Some thirty-five of its pages are devoted to the early history of the acute exanthemata, while the subjects of variola, vaccinia, varicella, scarlatina, rubeola and rubella are extensively discussed. The feature of the book which particularly commends itself to us is the clear and concise manner in which the author describes the initial lesions of the different diseases and the important points of differential diagnosis. But Dr. Corlett is peculiarly adapted for this part of the subject, being an expert clinician in diseases of the skin. One familiar with the objective symptoms of all forms of skin diseases is particularly well equipped to write upon the acute exanthemata, for he can appre-

ciate from experience the confusion which may arise in confounding these with the ordinary non-infectious eruptions. Upon this rock many a beautiful diagnosis has been wrecked.

At the present day, when we must look upon every papular and pustular eruption with suspicion, a good, practical knowledge of the common skin diseases is, indeed, often necessary to exclude a diagnosis of variola, for varied and confusing are its manifestations in the modified form. One can easily make a diagnosis of a typical case of any of the exanthemata; it is the anomalous ones which tax our knowledge.

The author has thoroughly appreciated these difficulties, so with beautiful and accurate pictures and well-written text he has given us the benefit of his great experience.

KURTZGEFASSTES LEHRBUCH DER KINDERHEILKUNDE FUER AERZTE UND STUDIRENDE.
Von Dr. CARL SEITZ, A. O. Universitäts Professor und Vorstand der Kinderpoliklinik in Munchen. Second enlarged edition. Berlin. 1901. S. Karger. G. E. Stechert, 9 E. Sixteenth street, New York, Agent. Price, paper, \$2.70.

This work on pediatrics ranks among the best European text-books. While American pediatricists differ from European authorities on many points in the feeding of infants, it is recognized that Germany is the source of the most progress even in the care of children. This work is eminently satisfactory, for it contains the whole subject in a very complete form, at the same time sufficiently concise for the purposes of the practitioner.

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